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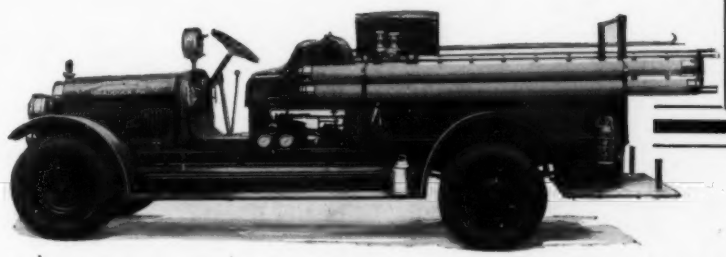

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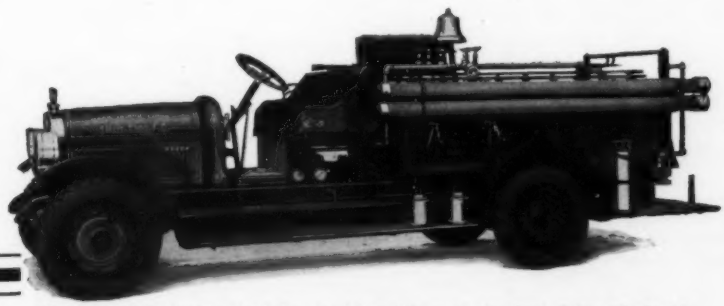

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The Journal of the Fire Protection Profession Since 1877

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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

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WHEN we hear anyone say he *hasn't time to read* even the things he knows will benefit him, we recall this pertinent paragraph from one of the magazines:

¶ "Thomas A. Edison recently said that he reads regularly fifty-two trade journals, the leading business newspapers, and a varied number of books every month. As busy as he is, he takes time to read. So does every other man who does things. The right kind of business reading sharpens our thinking. It stimulates our imagination. It broadens our vision. It opens new avenues of information. Reading will never take the place of doing, but it enables us to travel twice as far with half the effort."

¶ Someone else has said that no man should be too busy to read that which will benefit him. If he *thinks* he is too busy, it behooves him to systematize his time *immediately*.

¶ FIRE ENGINEERING, we have good reason to know, is read with unusual care by its subscribers and this "too-busy-to-read" thought may perhaps prove more applicable to those who do not yet know its advantages.

Let's pass it along!

The Publishers

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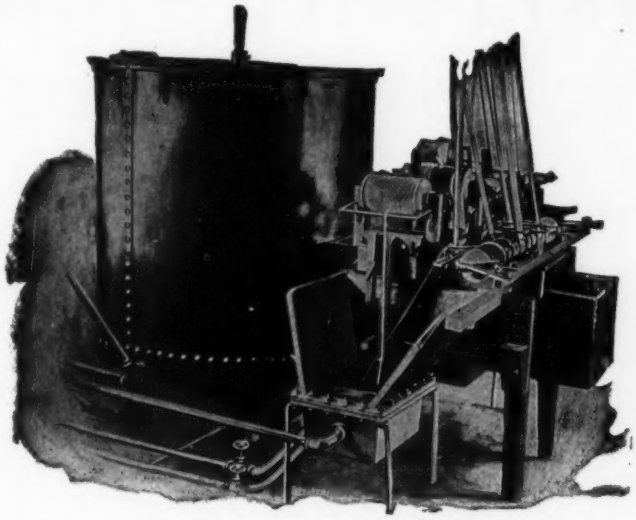

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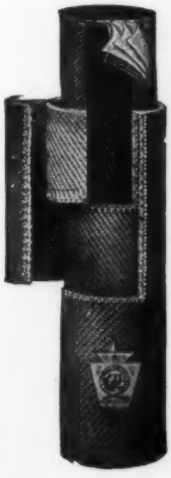
FABRIC FIRE HOSE is so unusual in its construction that we have been asked again and again just how it is made. Those who have used it and have found its wonderful service qualities, far above the average hose, felt sure that we must have some special process of manufacture that makes Fabric Hose better.

And we have.

For instance, the machine illustrated above is for our patented process of treating the cotton strands with wax and Para gum, making Fabric Hose absolutely waterproof and impervious to mildew and rot.



Many other details of our process, besides this one, are illustrated and explained in a little booklet we shall be glad to mail you for the asking.—"Wax and Para Gum Treated Fire Hose.—How It Is Made." Address:

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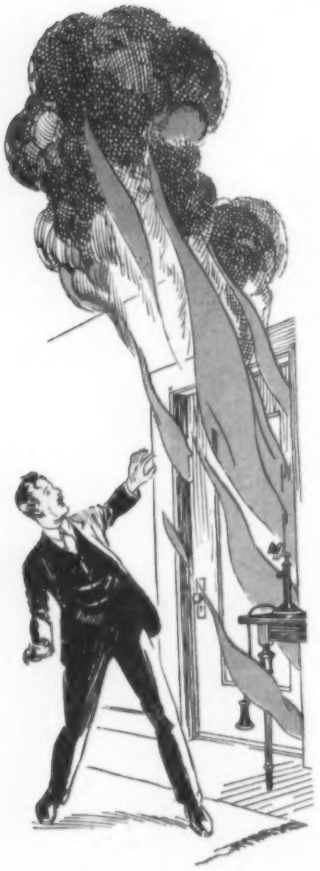


CITY OF SPRINGFIELD
SPRINGFIELD, MO.

March 24th, 1926

The Gamewell Company
Newton Upper Falls, Mass.

Gentlemen:

On March 7th, at 12:15 P.M., an oil stove exploded in the office of Dr. Wells at 328½ South Avenue, setting everything in the room on fire. The Doctor ran into the next room to phone the fire department. By the time he got central the fire had eaten through the door and was so hot he had to leave before giving the alarm.

While all this was taking place a small boy on the street saw the blaze bursting through the windows, and pulled box No. 12.

The fire was in a bad block, just a lumber yard with a brick wall around it. The wind was blowing forty miles an hour at the time of the fire, and in the right direction to carry the fire through the block.

This happened on a Sunday when every business house was closed so it would have been hard to reach a phone before the fire had gained great headway. As it was, we stopped it in the room in which it started with a very small loss.

Yours truly,

(Signed) W. B. PRICE,
Chief, Fire Dept.

The Unseen Skill

The real test of a fire alarm box comes in the "pinch"—when lives are in danger. The box ***must*** operate. It must be so built that it will operate in spite of the strain of expansion and contraction caused by fluctuating temperatures. Gamewell Boxes do operate whenever called upon because we have found through years of experience what allowances must be made for expansion and contraction.

You could take a Gamewell Box apart, make a Chinese copy of every part, put it together and then—if the "unseen know-how" of assembly were missing—find that your box would not work properly under practical operating conditions.

It is the "unseen skill" that determines whether or not a box works when the emergency arises. Make certain that you get it by specifying Gamewell Boxes.

THE GAMEWELL COMPANY

Newton Upper Falls, Mass.

A Box a Block

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX FEBRUARY 9, 1927 NUMBER 3

Value of Fire Department Setting-Up Exercises

Chief S. R. Allen, of Brookline, Mass., Institutes Calisthenics in Daily Routine—Benefit to Discipline—Improves Physical Fitness

By HARRY BELKNAP, Boston, Mass.

THE adoption of drills and training for fire department members is more and more general throughout the country in both large and small units. The system which Chief Allen has inaugurated in his department, which includes regular setting up exercises every day for all members, has, he believes, been very beneficial to all. The following article gives a description of Brookline plan:

Setting-up drills are held twice daily in every fire station of the Brookline, Mass., department and it is the

Officials of the Brookline Fire Department.

Left to right. Chief Selden R. Allen, Fire Commissioner Willard W. Estabrook and Deputy Chief J. B. McDonald.

belief of Fire Commissioner W. W. Estabrook and Chief Selden R. Allen that these exercises are beneficial and of great value to the officers and men.

The idea of compulsory and supervised calisthenics in American fire departments is comparatively new although in some foreign fire brigades where military rule prevails it is customary for the men to do regular exercises and in some cases acrobatic drills.

Advantages of Setting Up Exercises

Chief Allen is a firm believer in the value of the drills and considers the system of daily exercises which he inaugurated soon after becoming chief of department one of the factors in bringing the Brookline force to its present state of fitness and efficiency.

"Discipline and morale are important in any organization and especially in a fire department" declared Chief Allen in talking of the military bearing of his men.

"There is nothing so beneficial as setting up exercises to develop muscle, reduce surplus flesh, and make the men physically fit and able to endure the hardships of fire duty. It brings a keeness to the eyes, freshness to the complexion, and a snap and quickness to the movements of men who might otherwise be sluggish and lazy. It helps to break up the monotony of life in the confined quarters of the fire stations and, I believe, it could well be adopted by every fire department in the country. The ordinary indoor routine tends to unfit a man for fire duty.

"The men of the Brookline department go through a series of exercises that are aimed to develop their lungs and strengthen the muscles of the arms and legs. These calisthenics help the chest expansion and provide necessary action for men who otherwise would spend the greater part of the day sitting around waiting for the sounding of the alarm bell.

Drills Held Twice Daily

"Our drills are held twice daily, just after morning and evening roll call. This means that each man in the

Setting Up Exercises in a Brookline, Mass., Fire House.

department will go through the exercises at least once a day and twice when on the 24 hour shift of duty.

"The drills are held on the main floor during the winter and on the roof or adjacent yard in the summer.

The men are allowed to take off their coats and waistcoats to facilitate their movements.

"The commanding officer of each company leads the men in doing the exercises and sees that his instructions are carried out to the letter. There must be no shirking or half hearted participation.

Men Discover Beneficial Results

"We have found that after a time the men get used to doing the drills and discover for themselves the beneficial results obtained. They participate with snap and enthusiasm and the older men soon find that their wind and endurance are increased.

"I consider the drills of incalculable value," the chief concluded.

The system of exercises used by the Brookline firemen is the one developed by the Gymnasium Department of the Town of Brookline and has proved simple, easily learned, and efficacious.

Twenty-Three Different Movements in Drill

The usual time taken for the drill is from fifteen to twenty minutes. There are twenty-three different movements involving use of arm, leg, and abdominal muscles.

Here is the list of movements used in the Brookline department:

Setting Up Drill

No. 1. Flexion of fingers and wrists.
No. 2. Flexion of elbows.
No. 3. Rotation of shoulders forward and back.
No. 4. Windmills in and out.
No. 5. Head bend forward, backward, sidewards, and turn.
No. 6. Body bend forward.
No. 7. Body bend backward.
No. 8. Body bend forward and backward alternately.
No. 9. Body bend sidewards.
No. 10. Hand touching opposite heel.
No. 11. Rise on toes and heels, alternately.
No. 12. Flexion of knees, forward, backward.
No. 13. Extension of leg, forward, backward.
No. 14. Side abduction of legs.
No. 15. Squat position, right and left leg outward alternately.
No. 16. Squat position, legs extended backward.
No. 17. Squat position, legs extended spread twice.
No. 18. Squat position, legs extended, raise right hand, then left alternately.
No. 19. Squat position, legs extended, touch chin to floor.
No. 20. Squat position, legs extended, complete turn of body.
No. 21. Flexion of knees forward, backward, double quick time.
No. 22. Extension of legs forward, backward, double quick time.
No. 23. Side abduction of legs, double quick time.

Other Fire Departments Fall Into Line

Several other cities and towns now have setting up exercises as a part of the routine for both policemen and firemen. Among the New England cities where the fireman go through daily drills of this nature, might be mentioned Taunton where Chief Fred A. Leonard's men keep in trim for the rigors of winter fire duty by limbering up exercises in the stations.

Indications point to a spread of the setting up drill in fire departments and the chiefs who have already adopted the system are enthusiastic in their approval.

Farm Protection Program Endorsed—At a meeting of a county farm bureau in Indiana, the program of the Indiana farm bureau in reference to rural fire protection was endorsed. Various units of rural fire-fighters will be organized.

Spokane to Have 200 Boy Scout Firemen—Spokane, Wash., will add to its fire force two hundred boy scout firemen. An examination will be held by the boy scouts to see who will be captain, battalion chief and lieutenant. The boy chief of this novel division has already been selected.

THREE MORE SECTIONS ADDED TO I. A. F. C. IN U. S. AND CANADA

Jay W. Stevens Plans and Executes Trip to Present Plan to District Associations Now Organized—Plan Carries

JAY W. STEVENS, executive secretary of the International Association of Fire Chiefs, has completed a trip through the various sections of the Uinted States and a part of Canada in order to present the idea of having certain fire organizations that are now organized to affiliate with the international body, and of forming new district associations in virgin territory.

The trip started from San Francisco on January 9 and the

Canadian Chiefs Who Met With the International Officers at Montreal.

Front row left to right: Chief James Armstrong (in fur hat); Chief R. C. Harrington; Chief Jay W. Stevens; Mayor Martin, Montreal; Chief John M. Evans; Geo. Cobb; Chief A. Tessier.

first stop was Dallas, Tex., to meet with the Southwestern Association of Fire Chiefs. From here a trip was made to Atlanta, Ga., for the formation of the Southeastern Association of Fire Chiefs.

The party stopped off at New York on January 20 and a meeting of the board of directors of the association was held at the Hotel Roosevelt. Chief John Gibson of Mt. Vernon, N. Y., and president of the New York State Fire Chiefs' Association, was present and he pledged his co-operation in the formation of

At the Banquet Given the Committee at Chicago.

the Eastern Fire Chiefs' Association, which will include New York, New Jersey, Pennsylvania, Maryland and Delaware.

Among those present at the New York meeting were:
First Vice Pres., Chief Ross B. Davis of Philadelphia; Second Vice Pres., Chief John Evans, New Orleans; Secretary, Chief

(*Continued on page* 141)

Use All Available Sources of Water Supplies

Where Shortage at Fire Is Threatened, Look Around to See That Every Source of Supply Is Being Utilized—Suggested Method of Handling Fire

IN several of the reports of fires appearing in this department the failure of the fire department to employ all the available sources of water supply when a shortage has been encountered at the fire has been conspicuous.

Apparently in the excitement incidental to a fast spreading fire of large proportions, the officer in command has not taken the time nor trouble to make sure that he is utilizing all the water which is within his reach.

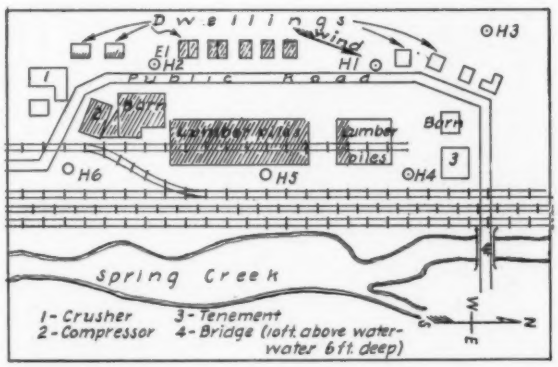


Fig. 1.

In the fire described in the last issue of this journal, this was noticeably the case.

Description of the Fire

The fire as described in the last issue occurred in a lime and lumber plant in a small city in the midwest.

The location of the various units of the plant are shown in the sketch herewith. (Fig. 1).

The fire started about 10 a.m. in the morning and was discovered soon after by employees of the plant who endeavored to extinguish it without calling on the city department. It was 11:30 before the first alarm was received by the city department.

The department consists of five engine companies each equipped with a triple combination pumper; two ladder companies each having city service trucks; two hose companies equipped with motor propelled, combination chemical and hose wagons.

The response in the department of the city in which the fire occurred is as follows:

First alarm, Engine Companies Nos. 1 and 2; Hose Co. No. 1; Ladder Co. No. 1.

Second alarm, Engine Companies Nos. 3 and 4; Ladder Co. No. 2.

Third alarm, Engine Co. No. 5 and Hose Co. No. 2.

In answer to the box alarm from the plant Engine Companies Nos. 1 and 2, Hose Co. No. 1 and Ladder Co. No. 1 responded.

Upon the arrival of the department the compressor (indicated by the figure "2" in the sketch) was fully ablaze and the barn was burning merrily on the second floor. Apparently the fire jumped from the compressor building to the barn and involved it.

A strong wind was blowing from the south carrying the fire from the barn toward the lumber pile.

Upon the department arriving, Engine Co. No. 1 was placed at Hydrant No. 2 and two lines were stretched, one to cover the barn and the other to cover the building shown to the left of it (namely, the compressor building).

The compressor building was rapidly becoming involved and it was hoped that this building might be saved as well as part of the barn.

The wind carrying the sparks toward the lumber piles made it necessary to utilize one of these streams to help cover the lumber pile.

Engine Co. No. 2 was placed at Hydrant No. 6 and a single line stretched to the barn, the fire in which building was increasing in intensity.

When the second engine was put in operation a very distinct drop in pressure was noted at the other engine indicating that the 8-inch main supplying the hydrant could not be depended upon to carry any further lines.

Although the low pressure was observed, it was attempted to use a hydrant line from Hydrant No. 5 but the pressure was so poor that a satisfactory stream could not be secured so that this line was discontinued.

The fire continued to spread despite the efforts of the fire department and it was soon necessary to transmit a second alarm.

This alarm brought out Engine Companies 3 and 4 and Ladder Co. No. 2.

The engines were not put in operation due to the lack of water supply. Finally Engine Co. No. 3 was placed at Hydrant No. 3 and an attempt was made to operate a single line onto the second lumber pile, which was now becoming endangered by the increasing fire in the larger pile.

This stream was very unsatisfactory.

In the meantime the fire continued to spread until it had involved not only the large lumber pile and a part of the small lumber pile to the right, but also a row of nine dwellings, seven of which were completely destroyed.

The department finally held the fire in the second lumber pile, but the loss included the compressor building, large barn, the large lumber pile, seven dwellings and two others partly burned as well as part of the small lumber pile.

Suggested Method of Handling the Fire

The operation of the department up to the time the second alarm apparatus was coming in cannot be criticized.

The placement of lines was satisfactory and had the department made use of the apparatus rolling in on the second alarm, placing it where water could be secured, it is very likely that the fire would have been checked before it had made much headway in the large lumber pile. Furthermore, it should have been held from spreading to the frame dwellings.

The point overlooked by the fire department was the presence of a stream of water which was not only accessible but would

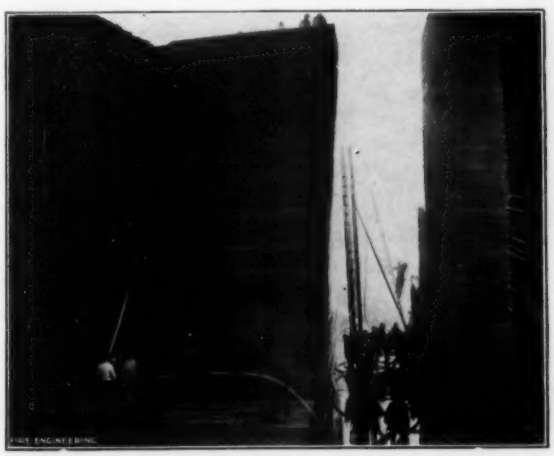


Fig. 2.

have afforded a very satisfactory supply for both of the engines on the second alarm.

The bridge is but ten feet above water and the water is six feet deep so that suction could be had without trouble.

The assignment of the first lines will remain as given by the officer in charge of the fire.

The placement of the apparatus on the second alarm will be as follows: Engine Cos. Nos. 3 and 4 on bridge across Spring Creek. Each of these engines to take suction from the creek.

With the assistance of members from the ladder companies on first and second alarm and hose company on first alarm, two lines should be stretched from each of these two engine companies on the bridge as follows: Engine Co. No. 3, two lines

to be stretched to large lumber piles to cover exposure at this point.

Engine Co. No. 4, two lines to be stretched, one to operate on barn and other to assist in covering exposures of large lumber pile, and, if necessary, the frame buildings across the public road from the lumber yard.

If there is any doubt whatever as to the ability of these four additional lines to hold the fire, no delay should be permitted but a third alarm transmitted at once.

It is very likely, however, that the three lines on the first alarm and four lines on the second alarm can handle the fire very easily.

One of the conditions at this fire which was not fully covered in the description of the original fire was the method of piling the lumber.

The lumber was piled to great heights, permitting a smooth face on one end of each pile but a ragged face on the other.

This is shown in Fig. 2 herewith, which, while not a photograph of this particular fire, shows the piling of lumber very well and incidentally illustrates the difficulties which are encountered by fire departments when operating on such a fire.

Once fire gets a hold it is very difficult to put it out. For killing the fire in a pile of this sort streams at close range, and small calibre, are usually more effective than a fewer number of heavy streams.

However, if fire gets burning rapidly then the best that can be done is to employ large streams first to deaden the main body of the fire and then finish up the fire with streams of small calibre.

Note particularly the ragged division where the rear end of piles meet. It can be appreciated that when fire enters such an opening it is almost impossible to quickly extinguish it.

Boston Has New Supplies Head

Edward E. Williamson, of the Boston Fire Department, has been named as superintendent of the Bureau of Maintenance and Supplies by Fire Commissioner Eugene C. Hultman. In this new position Williamson will have supervision of department buildings and supplies as well as of the motor apparatus. He has been in charge of supplies and repairs since last July when District Chief William H. McCorkle was assigned to fire duty.

E. E. Williamson, Superintendent of Maintenance

It was on May 11, 1906, that "Eddie" Williamson entered the Boston fire department as a private. He was made assistant engineer in 1907 and engineer in 1916. He served with engine companies 34, 26-35, and 7.

He was appointed acting superintendent of motor apparatus in 1921 and permanent superintendent in 1922. Prior to entering the department he was a locomotive engineer and during the World War he served on a mine sweeper in the United States Navy with the rank of Ensign and is now a lieutenant in the Naval Reserve Force. He is a licensed marine engineer and was for a time an assistant instructor in the Mechanics' Art High School.

Supt. Williamson lives at 135 Russett Road, West Roxbury. He was married a few months ago to Miss Bessie Burkhardt, of Mattapan, and with his bride made the trip to New Orleans in October for the convention of the International Association of Fire Chiefs.

HARRY BELKNAP.

Green Island, N. Y., Re-Organizes—The fire department in Green Island, N. Y., is being re-organized to the call-man system. Herbert Holloway is the recently appointed chief.

Indictments Asked for Fur Arson Ring—The district attorney at White Plains, N. Y., has asked for indictments against sixteen members of a fur arson ring who are responsible for a number of fires since February, 1926. It is said that this ring defrauded the insurance companies out of $100,000.

Bloomfield, N. J., Chief Saves Daughter—Chief George Koeber of Bloomfield, N. J., directed the rescue of his daughter and two others who were trapped in the offices of the Prudential Insurance Company. Chief Koeber was injured when the second floor of the office building gave way, and he returned to quarters with bruises on his right leg.

Chief Moran Completes 40 Years' Duty

On January 6, forty years of honorable service in the fire department were rounded out by Chief John C. Moran of Hartford, Conn., a member of the Editorial Advisory Board of FIRE ENGINEERING. The chief celebrated the event by remaining at his desk at fire headquarters where he received his many friends who came to extend their sincere good wishes. Floral decorations continued to arrive all day and the chief's desk was heaped high with the gifts.

Chief John C. Moran, Hartford, Conn.

He joined the department in 1886 as a substitute and on January 6, 1887, he was appointed stoker of Company 8. In 1889 the chief was advanced to engineer and on October 1, 1908, he was made second deputy chief. On May 1, 1912, Mr. Moran was appointed first deputy chief under Chief Loomis. The following year Chief Moran was placed in charge of the entire department.

Chief Moran in 1908 attended the New York fire department's drill school and the Fire College in the same city. Later he was sent to Boston to study methods there. In 1909 he was made instructor of Hartford's first drill school for firemen.

Much of the present department's efficiency is due to Chief Moran's aggressiveness and the methods that he introduced.

W. S. McLoughlin New Chief of Bayonne

The new chief of the Bayonne, N. J., Fire Department, succeeding Chief Alfred Davis, retired, is William S. McLoughlin, who has served for eight years as assistant chief.

Chief McLoughlin began his career as a member of the Bayonne Volunteer Fire Department, attached to Hudson Engine Company No. 3. By the time the volunteers were disbanded, in 1906, he had risen to the post of assistant foreman. On August 21, 1906, he was appointed a hoseman in the paid fire department.

He was promoted to the grade of lieutenant on July 16, 1912, and on July 27, 1916, he was made acting captain of the auxiliary squad. He assumed complete charge of the squad on May 1, 1917.

Chief Wm. S. McLoughlin, Bayonne, N. J.

The next advancement of Chief McLoughlin came to him as a result of a fatality, the then assistant chief, Bonney, having been killed responding to an alarm of fire. Last July 28 Assistant Chief McLoughlin was made acting chief and he received his full appointment on December 18, 1926, to take effect on January 1.

Second Assistant Chief James Hogan has been appointed first assistant, and Captain William Garrity as second assistant chief.

Modern Fire Alarm Signalling

Description of Automatically Operated Office Installed at Lakewood, Ohio

By E. W. KEIRSTEAD, E. E.

THIS is the nineteenth of a series of articles on the care, installation and repair of various phases of fire alarm work. The author has had practical experience in this field, and he will answer questions on this subject that are submitted to him by the readers, free of charge. The only condition is that a stamped envelope must be enclosed for reply.

Description, Layout and Operation of Station

In this article I will describe what I believe to be one of the most modern and model automatic offices. I have selected the station at Lakewood, Ohio, for in addition to it being a model alarm office from the inside, it is perhaps the most modern in the exterior respect also. Of course it has required a lot of hard work both in the planning of the office, and in the pushing of the bond issue, to cover the station cost.

The City of Lakewood is most fortunate in having as the head of their department a man who always has the welfare and upkeep of the department at heart. Several years ago Chief Joseph H. Speddy made plans for a new fire alarm office, one

Fig. 52. Equipment in the Fire Alarm Station at Lakewood, Ohio.

which would take care of all future expansion, and with the thought in mind that some day the city might be annexed to Cleveland, he had at that time a two-circuit board which was being used to control all the fire alarm circuits in the city.

The outside aerial lines were old and would have to be replaced with new ones; the batteries used on the circuits were old and would have to be renewed; in fact the chief decided that the whole system would have to be changed and a much larger one put in. In addition to the alarm circuits, the question of alarm boxes was also taken care of, boxes were far apart and new sections were being made overnight. Protection would have to be given to the outlying districts as well as to the central ones. To show how well the situation was taken care of by the chief, the city now is one of the very few that has the system covering the city completely, that is, a fire alarm box in every block. One can find a fire alarm box in any part of the city and it is not necessary to travel over one block from any point to reach one.

These boxes are all fast time boxes and are all four number boxes starting with 9s in every instance such as 9231-9835, etc. This was done to make it a simple matter to cut the Lakewood office in with Cleveland at any time the annexation took place. Cleveland boxes reaching nearest the city line of Lakewood were all numbered 8s. It can be inferred from this that it would be a simple matter to change over companies, etc., should the Cleveland department control Lakewood. The city officials all visited a number of fire alarm offices before the present one was planned, in order to get suggestions. The alarm system is housed in the same building with the fire department headquarters, being located on the second floor and isolated from the dormitories by a brick fire wall.

The batteries and generator set are located on the first floor in a room by itself. There are three engine houses in the city, one the central station at Warren Road, one at Madison Avenue near the National Carbon Co.'s plant and one on Detroit Ave.

Equipment in Fire Alarm Office

In the basement is mounted on a rack a cross connecting or terminal board; it is at this point that all the underground and overhead circuits from the outside are brought before going to the alarm office. This panel also has the necessary fuse protection for the circuits. The various circuits come to this rack from the main outside the terminal directly outside the headquarters and go to the alarm office from the rack. It is a thirty-two pair cable and it is run outside on the wall up through the floor into the office terminal, the lines above mentioned stop at the office terminal.

From here the circuits run to the various instruments in the office. They are all run under the floor in "greenfield" tubing or rigid conduit and are carried in conduit up the backs of the boards to the place where they terminate.

The office is intended to properly take care of twenty box circuits and six alarm circuits through an automatic repeater.

The apparatus in the central office consists of the following and in Figure No. 52 the plan of the office is shown giving the location of the various apparatus.

2—10 circuit combination automatic central office type storage battery switchboards. The finish is black monson slate with kickplates and shelves of slate.

1—1/20 circuit main line protector board equipped with the necessary fuses and repeater cut out and gang switches for placing the repeater in series or parallel position as desired. It is equipped with the necessary pin switches for cutting out or grounding outside or inside loops.

1—12 circuit automatic repeater for taking care of twelve alarm box circuits and independent or station alarm circuits. The repeater is mounted on an art metal type pedestal and covered with a dustproof case.

1—Operators' pedestal upon which is mounted the following equipment: One recording set, consisting of a punching register, take up reel and time stamp. One manual fire alarm transmitter for sending out special alarms and telephone alarms as they are received by the telephone operator. One sending key cut in the box circuit for the sending of special signals, etc.

1—Turret type auxiliary telephone pedestal, consisting of open and closed circuit jacks, with four listening jack plugs and one calling jack plug. Twenty green signal lights together with a common buzzer operating on all circuits. One calling key, and a Western Electric desk type telephone set.

1—Western Electric P. B. X. telephone desk of mahogany finish equipped with the following apparatus: Twenty exchange lines with pilot lamps and common buzzer, 10 double supervised cord circuits for two-way ringing, 8 jack ended trunk lines with individual annunciators and common buzzer, head receivers and swinging arm transmitter. The telephone equipment also includes a central office test set for testing the telephone lines from the firm alarm office, telephone battery, and 8 desk telephones located in the following places: One set in each of the three engine houses, chief's residence, chief's office, secretary's office, city hall and the police headquarters. Included in the auxiliary telephone equipment are ten portable lineman's telephone sets for establishing communication between the office and any fire alarm box on any circuit.

The battery installation is located on the first floor in the rear of the chief's office. There are two racks in the installation containing four shelves each and four circuits of batteries are placed on each shelf, i. e., two circuits each consisting of an A and B set. The racks are finished in black aspaltum to prevent discoloration by the accidental spilling of acid. The jars are supported by glass rods set up on porcelain insulators spaced equally apart and all connections are made at the fuse blocks. The racks are so installed that should an additional rack be desired, the addition would simply be a matter of breaking a condulet and the addition of a T condulet fitting to place the other rack in commission. The battery room is exceptionally well lighted and airy, ample space being allowed on all sides of the battery racks. There is water supply in the room making it a simple matter to wash jars and mop up the floors after repairs.

The generator is of the Western Electric type and large enough to care for any additional batteries required. It is sup-

ported by a cement pedestal of about 3 ft. by 2 ft. 8 in. by 2 ft., giving ample supporting surface. The controlling switch and rheostat are placed on the wall directly above the generator from which the generator is controlled.

In each engine house an operating panel of the type recently described is supplied. The following equipment is placed on each panel: One punching register together, with a take up reel, and time stamp; one ten-inch main line gong, one line key of the telegraph type, one small turtle gong, one combination pin switch, main line relay, and the necessary traffic signal movements. These panels are all made of oak and are highly finished; all machine parts are nickel plated giving the apparatus a very pleasing appearance.

The traffic units consist of a Klaxon siren placed at busy corners and controlled at each individual engine house by the movement contained on the engine house panel. There is also placed with each siren a red light which is also operated by the same movement.

All the old boxes which were in commission at the time the new system was installed were renumbered and retimed, in addition to being equipped with telephone jacks and new quick action doors. It is now possible to send in an alarm very much quicker and easier. Owing to the large number of new boxes which were placed in service it was necessary to renumber the

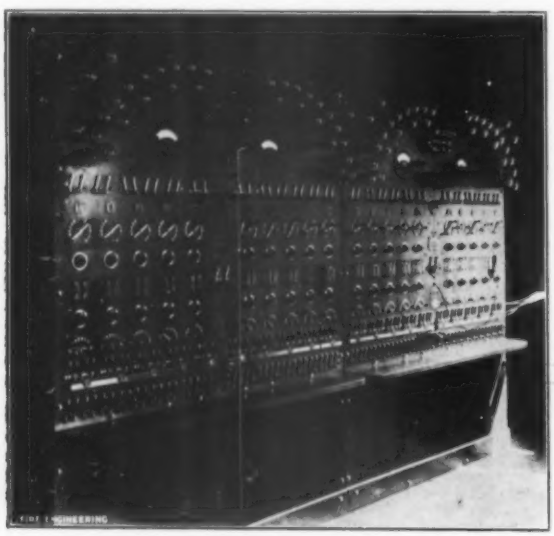


Fig. 53.

entire group of boxes and move several of the existing ones to new locations. This entailed a great amount of study and labor as the entire running card of the department had to be rebuilt. The chief was assisted in the work by the two senior lieutenants of the department. The work was accomplished in a remarkably short time and was done in such a manner as to enable the author to go ahead and install new boxes and equipment, retime the old boxes and completely overhaul the system without the disarrangement of a single box.

The office is manned by three operators all of whom are uniformed members of the department. These men who operate the system were selected by the chief from the ranks of the department at that time, and work eight-hour shifts. The work connected with the operation of the office consists of the regular routine of a fire alarm office, such as the reception and transmission of the department's business, the sounding of alarms, the charging and operation of the batteries and switchboards as well as the keeping of the records.

The repair department has on hand all the necessary equipment to properly handle the servicing of the system; this equipment consists of the following:

One line repair truck which has all the necessary gear to construct lines, etc., such as wire reels, wire and cable, jacks, hand lines, tackles and blocks, tool boxes and several sets of climbing spurs. The truck is housed in the rear of the central station, and is always kept in readiness for any emergency.

The signal repair equipment is housed on the second floor in the rear of the operating room and consists of spare boxes, gongs, sirens, fuses, batteries, lamps and all kinds of tools for the repair of the apparatus. Several thousand feet of line wire is kept in storage for any emergency which may arise and the department prides itself on the reliability of its alarm system.

At the time the alarm system was being installed the chief placed these men on special detail whereby they were to assist the men who were constructing the system. This allowed the men to make themselves familiar with every phase of the work.

The supervisors, in addition to their work of assisting the construction men, also made up charts of all terminal connections, the overhead fire alarm circuits, the connections of the apparatus and perfect scale drawings of the placement of each piece of apparatus in the office and battery room.

These drawings which were approved by the chief were all framed and placed in the operating room where they can be referred to at any time.

The boxes are tested at different intervals to make sure of their positive operation, and the lines are serviced and maintained in very good order.

The ease with which the men accepted their new duties was very pleasing both to the chief and the men of the department, and it is my belief that the city of Lakewood has one of the finest, if not the finest, automatic installations in the country.

If any one located near the city of Lakewood is interested in a new office or the addition of new equipment, a visit to the above mentioned city is well worth while. The chief is always well pleased to show the station to visiting chiefs and fire alarm superintendents.

Dinner and Dance to Honor Chief Kenlon

Invitations were issued last week for a dinner and dance in honor of Fire Chief John Kenlon, who will have completed forty years service as a fire fighter on Thursday evening, March 3, 1927. The affair will be held in the Cascades room of the Biltmore Hotel and it will be unique in that there will be no dais and only two speeches.

The committee issuing the invitations is composed of: Dr. Harry M. Archer, William W. Cohen, Wm. Jerome Daly, Edward J. Kenny, William F. Kenny, Mr. Francis Loughman, Stephen J. McFarland, Daniel Meenan, William H. Todd and Robert H. Mainzer, the secretary-treasurer of the committee.

Chief John Kenlon, New York City

Chief Kenlon has been Chief of the New York Fire Department fifteen years, which is longer than any predecessor ever held that important and responsible post. When appointed a fireman March 3, 1887, in Engine Co. 24 on Morton street, he had not long been ashore from an early life at sea for fourteen years.

His career in the department has been most eventful. On numerous occasions he had narrow escapes from death. Only last week (February 2) he escaped death or serious injury when a beam grazed him in a $1,000,000 fire on Broadway in New York city.

American-LaFrance Issues Catalogue

A very complete catalogue of the line of fire equipment that they manufacture has been issued by the American-LaFrance Fire Engine Company of Elmira, N. Y. The Book contains 190 pages and is liberally illustrated. The novel feature of this catalogue is the fact that in addition to illustrating the various appliances, there is a short description telling how the device should be used. This is a very useful innovation in catalogue compilation.

Bill to Compensate Massachusetts Firemen—Firemen from Haverhill, Gloucester, Medford, Cambridge and Lawrence, Mass., appeared before the Massachusetts legislative committee to speak in favor of a bill introduced by Mayor McGregor of Haverhill which makes it legal for cities and towns to compensate firemen who are incapacitated by injury or illness while in the performance of their duty.

Central Fire Station Opened in Gloucester, Mass.

Ceremonies Attended by Many Massachusetts Chiefs —Description of the New Station and Equipment

By HARRY BELKNAP

MANY of the cities are now erecting or planning the erection of new fire stations, and the description of the Central Fire Station dedicated in Gloucester, may furnish ideas that may be adapted to suit local conditions.

The very latest ideas in fire station construction and consideration for the possible comfort of the firemen are embodied in the design of the Central Fire Station that was dedicated recently in Gloucester, Mass. The building has five double doors and it is constructed of brick on a steel frame. The station was designed by George Ernest Robinson of Boston.

Chief Homer R. Marchant, Gloucester, Mass.

In the basement there is the heating equipment, storage space, and room for cleaning hose. The apparatus floor is of concrete with a four foot dado of brown salt glazed tile. The walls are of white brick. The floor is entirely clear and unobstructed by pillars or posts of any kind. The ceiling is in natural wood finish and the steel girders are skillfully boxed in. The building which has an area of 6,400 square feet is built of red brick with base of Rockport granite and cast stone trim above the first story, on the cornices, and on the parapet wall. There is a tower in the rear right hand section for drying hose.

The building is two stories in height with a flat, insulated roof, the section above the central portion is raised to allow for light and ventilation of the large meeting room on the second floor. The frontage of the structure on School Street is 80 feet and 42 feet on Procter Street.

To left of the entrance is the watch room with patrol desk, gongs, and telephone switchboard. To the right of the entrance is the stairway and doors leading to the offices of the chief of department and the deputy chief. These rooms are finished in light oak, with oak desks and chairs, steel filing cabinets, and frescoed walls. There is a wash room and toilet connecting with the chief's office.

In the rear of the main floor are a supply closet, series of steel lockers for keeping coats and fire clothes, and in a separate fireproof section in the southwest corner, there is a completely equipped machine shop for making repairs to apparatus. Above this shop on the second floor is the fire alarm room equipped with a Gamewell 8-circuit system, two fire alarm switchboards, transmitter and repeater, providing for sending out alarms on both the fast and slow time. This room has brick flooring and walls and concrete roof. There is a specially made metal frame for the switchboard. The stand for the transmitter is similarly made and decorated to resemble natural wood. Fire Alarm Superintendent Henry J. Burke, and his assistant, Gardner Burke, had charge of the installation of the wires. All of the fire alarm equipment was furnished by the Gamewell Company. In the rear of the fire alarm room is a battery room containing five hundred cells of storage batteries.

At the head of the stairs on the second floor is a reading room, 18 feet by 12 feet, with stone fireplace. Opening off of this on the School Street front is an attractive smoking and lounging room, 18 feet by 22 feet. In the centre of the building there is a large assembly hall, 26 feet wide and 42 feet long. This room, suitable for meetings or banquets, has monitor windows with amber glass which admit a flood of sunshine from the raised section of the roof. The wood trim of this room is stained a mission color and the walls are cream colored. The equipment includes a player piano and a radio set. Candelabra electric wall fixtures, old fire buckets, silver trumpets, and two framed broadsides giving a complete record of fires in Gloucester from 1830 to 1900, add to the charm of this remarkably attractive room.

There are three separate dormitories, two with seven beds each and one with eight beds. These sleeping quarters are light and airy with outside windows, white enameled bed frames, and brass sliding poles. The dormitories lead from a corridor from which also open doors leading to the lavatory and shower baths. On this same corridor are located a supply closet, individual steel lockers for clothes, a clothes drying room, and three rooms for officers, one fitted with two beds and two with single beds for use of captains of companies. Toilet and shower bath adjoin the rooms.

On the Procter Street side of the building are situated bed rooms for the chief and deputy chief with toilet and shower bath between. The walls in the sleeping rooms are stained a gray color. The lavatories and bathrooms have tiled floors and white enameled walls. There are six sliding poles from the second floor to the apparatus floor and one pole from the roof to the second floor.

Chief Homer R. Marchant, of Gloucester, is very proud of the new building which is considered one of the finest structures of its kind. There had been agitation for years in Gloucester for a new central station to replace antiquated frame structures. The contract for the building was awarded to J. J. Bowes & Son on July 29, 1925, and actual work was commenced on August 3, 1925; the station and fittings cost $75,000. It takes the place of three old fire houses.

The Gloucester Fire Department, headed by Chief Marchant and Deputy Chief John A. MacAuley, consists of 34 permanent men and 68 call men. Guy Wagner is supervisor of motor apparatus and Henry J. Burke is fire alarm superintendent and city electrician. Chief Marchant, whose father used to be chief of the Gloucester Fire Department years ago, is also building inspector. There are seven other fire houses besides the new central station.

The following pieces have been installed in the new central station: Ladder 1, aerial truck; Ladder 5, city service truck; Pumper No. 3, Ahrens-Fox; Pumper No. 5, Ahrens-Fox; Squad A, Chemical 1, Hose 1, and the chief's car. In addition to covering the city proper runs are made to outlying sections, including Riverdale, Annisquam, Bayview, Lanesville, East Gloucester, Magnolia, and West Gloucester. Some of the Central Station apparatus makes runs of 7 miles to Lanesville and 6 miles to West Gloucester.

Red, green, and white ship's lanterns have been placed on the front of the central station and at the door and in the halls old lanterns from hand-tubs and steam engines have been made into electrified fixtures. Several oil paintings and silk flags add to the appearance of the upstairs rooms.

The new Gloucester station was formally accepted by the Municipal Council on October 30 and the apparatus moved in on the morning of November 1. A parade was formed from the old Defiance Street house, a structure which will now be torn down. The line was headed by Chief Homer R. Marchant in his car, and followed by fire apparatus units. During the afternoon 2,500 school children visited the station where they were shown over the building and served ice cream, apples and cookies. Each child was also given a souvenir hat bearing the inscription "Central Fire Station, Dedicated, November 1, 1926." The formal dedication took place in the evening. Strings of colored lights and signal flags were strung across School and Mason Streets. An address was delivered by Mayor Henry H. Persons, and this was followed by a musical and vaudeville entertainment, and later by dancing. Chief Marchant acted as chairman of the general committee of arrangements and Henry Hilton as secretary.

Among the guests at the dedication ceremonies were Chief Robert Grant, of Beverly, Mass.; Chief William H. Mahoney, of Peabody, Mass.; Capt. W. F. Thomas, of Worcester, Capt. Thomas J. Powers, of Worcester, secretary of the Massachusetts Permanent Firemen's Association; Deputy Chief Stacy, of Newton; Capt. L. B. Morgan, of Waltham; Chief Warren S. Belcher, of Winthrop; Chief Fred Graham, of Wakefield; Ex-Capt. Young, of Newburyport; District Chief Louis A. Stickel, of Boston; Daniel J. Looney, secretary of the Massachusetts State Firemen's Association, Capt. Day, of Lynn; M. J. McGonagle, president of the Russell Club of the Boston fire department; Chief Thomas Qualey, of Medford; Chief Charles H. French, of Manchester, N. H.; Ex-Chief Jesse Barrett, of Peabody;

Deputy Chief Daniel Hannon, of Peabody; Chief L. W. Thurston, of Rockport; Chief Miguel and Ex-Chief Floyd, both of Manchester.

An unusual test was held to give an idea of the area and size of the apparatus floor. The big aerial ladder truck was driven in through one of the front doors and turned, without backing or filling, and sent out through another door. There had been much discussion as to whether or not this could be done and the test was given to settle the matter.

Many handsome floral tributes were sent to the station on the opening day, one of the largest being a huge horseshoe made of red and white carnations with a replica of a fireman's helmet in the centre. It was inscribed "To Gloucester's Smoke Eaters."

On the evening of November 18 the annual dinner of the Gloucester Permanent Firemen's Association was held in the assembly hall of the new station which proved an ideal banquet hall with plenty of space for three long tables. Ninety persons, including the wives of the permanent men, the mayor and Alderman Pew, chairman of the municipal fire committee, attended. John Anderson was chairman of the committee of arrangements.

View of the Central Fire Station in Gloucester, Mass.

Upper—Exterior view of the new fire station. Lower—The apparatus floor which is void of all obstructions and which is large enough for an aerial ladder to drive in, turn around and leave the station without any backing up.

The officers of the association are Louis A. Francis, president; Fitz Robinson, secretary; and John Hinckley, treasurer.

Middletown May Do Salvage Work

Captain Albert S. Johnson of the New York City Fire Patrol addressed a mass meeting in the council chambers at Middletown, N. Y., and told of the work done by organizations in salvage work, similar to the one that was recommended that should be installed in that city. He spoke of the work carried on in Los Angeles, Cal., Dallas, Tex., Portland, Ore., Jersey City, N. J., Orange, N. J., Wantagh, N. Y., and Nyack, N. Y.

In the last three years, Capt. Johnson has been instrumental in assisting the various salvage departments to organize and each now carries upwards of twenty covers.

The establishment of the salvage work has the whole hearted support of Chief W. M. Seeley of Middletown who stated that if such a corps is established that he would assign officers and men to handle the work. A suggestion was offered that in the mean time the department carry several covers on each piece of fire apparatus. Members of the city council were outspoken in favor of the proposition and it is anticipated that Chief Seeley will experience no opposition in his petition for an appropriation to purchase the covers.

Capt. Johnston, of Salvage Corps, Retires

After forty years of service in the fire patrol of New York city, Albert Sidney Johnston will retire on February 16 as assistant superintendent of the corps.

The yearly average of fires that he has attended in his long years of service has been five hundred. He has been awarded the Life Saving Medal with a bar signifying that he has won the award twice. Although never in the fire service of New York city (the salvage corps is maintained by the fire insurance interests), Capt. Johnston has commanded battalions of city firemen in action. He was born 65 years ago on Chatham Street, New York city, and his father was a member of the old rattle watch which was the fire patrol of that day. Previous to the entry of Sid Johnston in the fire patrol, that unit was known as "The Forty Thieves."

Capt. Albert Sydney Johnston

He has answered more alarms than any man living—in all 20,000 calls. Pinned on to his coat are the medals that he has won in his long years of service.

During his years of service conditions became entirely different. A fire patrolman will not now dare to pick up a cheap rag doll without reporting the fact to his superior officer.

An uncanny quality of Johnston is his ability to "smell danger in smoke." When the old Equitable building burned in 1912, he entered the Broadway entrance at the head of his company and then he ordered his men from the building. He went into investigate alone. He met Battalion Chief Billy Walsh.

"Come on out," he shouted to the chief, but the suggestion was only laughed off. Again he repeated his warning as he retreated from the building. The wall crashed, and it was not until three days later that rescue workers were able to locate the body of Billy Walsh.

Any one who has had the fortune to work with Johnston will always remember him—honest, and straight forward in his expressions or his opinions, and gruff but kind in his mannerisms. It is reported that he is going to a farm that he owns in Orange County, N. Y.

An Enthusiastic Fire Fan

Every town, I suppose, has its "buffs" that chase to fires, and despite their ultra-enthusiasm, often are of helpful service to the boys. I enclose a photo of "Chief" Charles Ross, whose real name is Owens. "Ross" has held the position of "Chief" for many years in Elmira, N. Y., and as the position is self appointive and carries no remuneration, there is no danger of competition.

"Chief" Ross is about fifty-eight years of age and has "served" for many years. He has a most retentive memory, and can vividly describe the big blazes of former days without an error as to date, time, apparatus and men on duty. The badges shown represents about one-third of his collection, and are usually carried on a vest beneath his coat. He is also equipped with an ample sized spanner, which he uses effectively when making his faithful nightly tours of the theatres.

"Chief" Charles Ross, Elmira, N. Y.

From all angles "Chief Ross is a typical fire buff."

"ART" ESPEY.

New Rules of the New York Fire Department

This Seventh Installment Covers Fire Duty, Parts I and II, Including Apparatus, Danger Signals, Fire Boats and Fuel Wagons

FOLLOWING is the seventh installment of the "Rules and Regulations of the Uniformed Force of the Fire Department of the City of New York," just issued by that department, and which are to be published serially in their entirety in FIRE ENGINEERING. *This book has been compiled and edited by Captain John J. McCarthy, of H. & L. No. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters, who worked under the personal supervision of Chief John Kenlon. This installment includes sections covering a continuation of Fire Duty, including Apparatus, Danger Signals, Fireboats and Fuel Wagons:*

Fire Duty (Continued)

APPARATUS (Continued)

SEC. 164. Steel cables shall be lubricated with raw linseed oil. All life nets (rope) shall be tarred at least once in each year.

SEC. 165. Gasoline tanks of apparatus in quarters shall be filled during the day.

When it becomes necessary to draw on the gasoline supply of another company, safety cans only, carried by the Battalion automobile, shall be used in transportation.

SEC. 166. Spare apparatus shall not be used for emergency service outside the line of fire duty, except with the permission of the Chief of Department or a Supervising Engineer.

Deputy Chiefs may use spare steam fire engines for the purpose of thawing frozen hydrants. When this is done, they shall communicate the fact immediately by telephone to the Supervising Engineer, who shall also be notified when such apparatus is returned to quarters.

SEC. 167. When spare apparatus is needed, or when such is moved from one location to another, the Supervising Engineer shall be notified, through Engine Co. 5, by telephone.

SEC. 168. When spare apparatus is needed, it shall be sent to the place required by the officer in whose quarters it is located.

Officers placing spare apparatus out of service, when a company apparatus is returned, shall send it to the quarters from which it was taken, unless otherwise directed.

Officers receiving or delivering spare apparatus, or the regularly assigned apparatus when returned after repair, shall test it and account for all Department property assigned thereto.

Traffic regulations shall be observed by members in control of spare apparatus, or company apparatus en route to or returning from the Repair Shop.

SEC. 169. Spare apparatus shall be given the same care and protection as regularly assigned apparatus. Commanding officers shall be responsible for all implements, tools and appliances forming part of the equipment of spare apparatus, and shall obtain a receipt therefor when making delivery to another officer.

Fire Duty—Part II

SEC. 170. Upon receipt of an alarm for fire every member present shall promptly report for duty on the appraatus floor. When definitely assured that the company is assigned to the alarm indicated, the officer in charge shall give a signal for the starting of motors, the opening of doors, and immediate response.

Company officers shall designate a member to precede apparatus as far as the street curb, in front of quarters, to warn pedestrians and vehicular traffic.

SEC. 171. All proper dispatch consistent with safety shall be used in reaching fires. Officers shall ride as near as possible to chauffeurs and direct them. They shall hold members responsible for reckless handling of apparatus, and shall prefer charges where carelessness, recklessness or other delinquency may be alleged for accidents.

SEC. 172. To guard against accidents, bells or whistles shall be sounded with a frequency compatible with conditions en route. These signals shall be dispensed with, when consistent with safety, in the immediate vicinity of hospitals, or of theatres, churches or places of a public character when people are likely to be assembled there. Discretion shall also be exercised, in this direction, when passing through hotel and residential sections late at night.

SEC. 173. Upon arrival at the location indicated by an alarm, and finding no fire, the company officer first to arrive shall make a thorough investigation, reporting the result, in person, to Chief Officers arriving subsequently.

SEC. 174. Alarm boxes shall be rewound when necessary by the Officer first to arrive in response to an alarm.

SEC. 175. The ranking officer present at a fire shall assume full control and command, until the arrival of a superior in rank, who shall be informed of existing conditions.

SEC. 176. The condition of hydrants shall be determined before any connection is made thereto.

SEC. 177. Under no circumstances shall members of companies enter buildings unless specifically directed to do so.

Unless otherwise ordered, members shall remain near the company officer or apparatus while awaiting orders.

SEC. 178. Officers in command at fires in buildings equipped with automatic sprinklers shall see that one of the first lines is used to supply such systems, to be augmented by connecting additional lines if, in their judgment, such are necessary.

SEC. 179. Officers in command at fires in manufactories, plants and premises covering large areas, shall avail themselves of such fire protection equipment as may be provided, when the operation of departmental forces can be assisted thereby. Pumping engines of companies shall be used, under all circumstances, when present.

SEC. 180. When fire occurs on the fifth or higher floor of a building equipped with a standpipe system, the first line shall be connected thereto.

SEC. 181. The officer in charge of an engine company first to arrive at a fire shall order a connection made to hydrant, and direct the laying of necessary hose lines.

SEC. 182. Aside from the engine and hook and ladder companies first due, the officers of all companies arriving subsequently shall report, in person, to the officer in command. Where it is apparent that such companies will engage in operations, tentative positions at hydrants shall be assumed pending the receipt of definite orders.

SEC. 183. Honorary members of the Department, at their own risk, may be permitted to ride upon Department vehicles, in addition to paid members.

SEC. 184. Extreme care shall be exercised in placing apparatus at fires. Unless otherwise directed, the roadway in the immediate vicinity of a fire shall not be obstructed by apparatus, nor shall fire hydrants or the tracks of railway companies be blocked unnecessarily.

SEC. 185. Officers in command of water towers, aerial ladder trucks, and apparatus equipped with turret pipes, shall see that such, when not in use, are situated in a position where they do not block roadways, but can be moved into action quickly.

SEC. 186. The rekindling of fires shall be carefully guarded against by all officers finishing up at fires.

SEC. 187. Officers in command at fires shall not unnecessarily jeopardize the lives or limbs of members.

SEC. 188. Officers shall always be near the nozzle to direct the movements of members, regulate the size and pressure of stream, and see that no unnecessary damage is done.

SEC. 189. At fires in their respective company districts, officers shall inform chief officers of dangerous conditions.

SEC. 190. Commanding Officers of engine companies shall see that hydrants are properly drained or pumped out, and, when necessary, supplied with rock salt, before returning from fires occurring between November 1st and March 15th.

SEC. 191. Officers in command of ladder trucks shall have control of the raising and placing of ladders, and shall permit their use only by members of the Department, or persons being assisted by members.

Instructions given in the Fire College shall govern the use of ladders.

Fire escape drop ladders shall be placed in position before returning to quarters.

SEC. 192. Officers in command at fires shall turn over all valuables received to the officer in charge of the Fire Patrol, or a member of the Police Department, obtaining a receipt therefor.

SEC. 193. Officers in command at fires shall give in their report the name of the Officer of the Police Department, or Fire Patrol, left in charge of the premises.

SEC. 194. Officers finishing up at fires in tenement houses shall state whether such are of the old or new law type.

SEC. 195. If the conditions surrounding a fire are of a suspicious character, the Officer in charge shall immediately notify the Fire Marshal by telephone, and place in charge of the scene

(*Continued on page* 138)

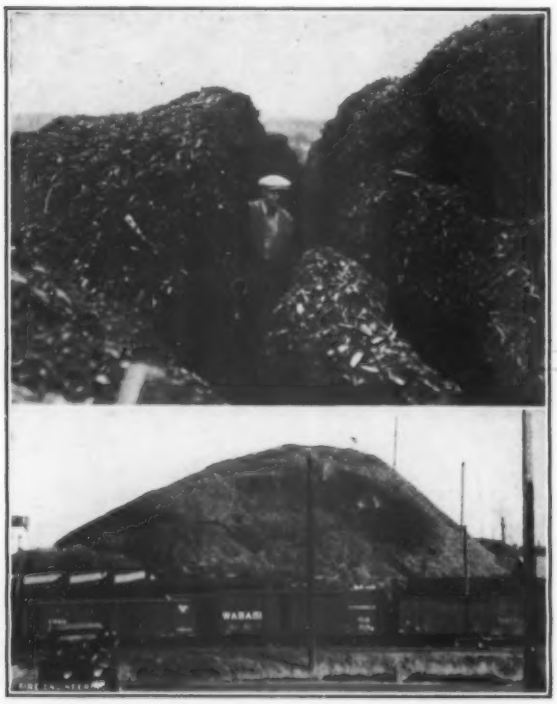
HOG FUEL FIRE RESISTS EFFORTS OF FIREMEN FOR PAST SIX MONTHS

Centralia, Wash., Department Puzzled as How to Cope With Problem—Fire May Have Resulted from Spontaneous Combustion

By BILLIE WILCOX

THE storage of "hog fuel," a comparatively new venture among the mills of the Pacific Northwest, has resulted in a stubborn fire in such a pile in Centralia, Wash. The pile of fuel that has been giving the Centralia, Wash., fire department a continuous battle, is above and beside a one million dollar plant located at one side of a railroad track. The hog fuel is the overflow from the mill and it is being stored as a reserve fuel in the event that the regular supply fails. The pile has been accumulating since July 1925 and at the present time is about three hundred feet in diameter and one hundred feet high. It contains approximately one thousand carloads and represents a fuel value of $48,000.

F. B. Wilcox, chief of the fire department, believing that the pile of fuel formed a potential hazard because of its proximity to the business district, took up the problem of liability and fire hazard with several insurance organizations but their opinion



The Hog Fuel Pile That Has Caused the Trouble

The upper illustration shows a large crevice that was formed in the pile by a cave-in, and the lower one gives an idea of the size of the pile. The hose lines may be seen stretching over the pile and several sprinkler heads are in operation.

was that the pile did not constitute an additional hazard and that spontaneous combustion in this type of fuel was unknown.

During the early spring of this year this pile was observed to be steaming considerably from the top. This continued all summer but not much attention was paid to this as it was thought that the steam resulted from the heating of the pile. At 11:00 a. m. August 5, 1926, the south side of the pile, or approximately one fourth of it, was discovered to be afire. Owing to the dry weather it burned quite rapidly but it was extinguished without much trouble by the mill crew and the local fire department. At the time, the cause of this was attributed to an overheated cable block. Later it was found to have started from spontaneous combustion a short distance under the surface. On August 9, one side of the pile was discovered to be afire burning under ten or twelve feet of fuel. As it could not in any way have caught from the outside, it was then realized that there was a fire burning in the pile which covered considerable extent and would probably be hard to extinguish. From the location of the fire it was decided by the mill officials and the officers of the fire department that probably by cutting in on the side of the pile and around it, the fire could be headed off before it could travel deep under the pile. The fire department laid two lines of three-inch hose siamesed to a large nozzle. They worked about fifteen hours cutting out this section and washing it away. No attempt was made at this time to put water on the top to extinguish the fire as it was believed that the water would run off rather than penetrate the pile. The large high pressure stream was used to wash the side of the pile away. After about fifteen hours of work a crack at the top of the pile about three feet wide was formed and since there was danger of a heavy slide, this method was abandoned. At this time the mill officials and Chief Wilcox conducted a very thorough investigation and gathered all the evidence they could on what caused the fire—whether spontaneous combustion or from an external cause. and also the best method of extinguishing it. Mill men, other fire officials and men who represented the insurance interests were consulted. Very little knowledge was gained from these sources as no one had ever had any experience in this particular line

It was decided to put a sprinkler system on all places thought to be afire and to watch the development while seeking for more information. A four inch water main was run to the foot of the pile, with connections on the end two one and one half inch hose. A fifteen foot pipe was laid at the end of this hose and on each end of this pipe was an open sprinkler head. These sprinkler sections were moved around the pile from time to time as the fire threatened to break out near the surface. Also men were stationed at different times with a fire hose, pouring water above the places which seemed to be on fire. Both the sprinklers and the fire hose seemed to have only accomplished one purpose, that of keeping the fire under control but it did not succeed in keeping it from breaking out in unexpected places.

After an investigation covering sixty days, H. M. Jones, Mill Superintendent and Chief Wilcox have concluded that the fire was not set and that the cause was spontaneous combustion in pockets of cedar sawdust. It was found in several instances that these pockets of cedar sawdust started to burn near the surface of the pile and in some cases burned up the cedar but did not ignite the surrounding fir, sawdust, and hog fuel. This belief was strengthened by the fact that for the last sixty days all cedar sawdust and slabs are used up immediately, and all the fir, sawdust and hog fuel had been piled on one side of the old pile and there is no fire in this new section, although there is one or more large fires and probably a dozen smaller ones in the old section At this time due to the sprinkler system. the passing of the hot dry summer days, and the heavy rains in the past few weeks, the outside of the pile now shows very little evidence of the fire inside. The fire will probably continue to smolder along without many outbreaks until the next dry season, at which time any outside fire on the pile may assume the proportion of a real menace to the mill and city.

It is now planned to put in a donkey engine with a drag to cut this pile in two, separating the newer fuel from the old, and to fire their entire battery of boilers from the old pile until it is used up. During the time required to do this, the fire will be checked by the use of sprinklers, fire hose and the possible rainfall. This company has had practically this same experience with the pile of fuel at their other plant in this city (The Western Crossarm and Lumber Manufacturing Company) except that in every case where the cedar was burned, the fire burned out after consuming the cedar, and none of the surrounding fir, sawdust, and hog fuel was ignited.

The investigation has lead to the belief that this fuel will not heat while under cover. It is also believed that mills that are storing hog fuel and are not troubled with spontaneous combustion, saw only fir logs, and not cedar timber. The officials of the Centralia plant now believe the only solution to this fire hazard is to do away with the old pile and hereafter not to store any more cedar.

New Assistant Chief Named for Manitowac, Wis.—Chief J. J. Kuplic of Manitowac, Wis., has advanced Captain John Gaedke to the office of assistant chief.

Boston, Mass., Starts the New Year Wrong—The first eight fire alarms received in Boston, Mass., after the arrival of the new year were false alarms. The first actual fire was that caused by an overheated furnace.

Albany, N. Y. Improves Department—Along with the $730,000 bond issue passed for Albany, N. Y., there was a provision of $65,000 for the fire department. This amount was used to purchase a water tower, a 1,000-gallon pumper, one delivery truck and touring car for the chief. In addition, $15,000 was used for alterations and improvements to two fire stations. The department is now looking forward to the time when they will purchase a fire boat.

WITH THE EDITOR

A False Sense of Protection

"Because there was a fire in a Montreal theatre the owners here should not be harrassed," said a New York city magistrate in dismissing the case against four theatre attendants who were charged with admitting children to the motion picture show.

And the seventy-six children who died in the indescribable panic in a motion picture theatre in Montreal shall have died in vain. Not that there was a justification or necessity for the sacrifice and the breaking up of many homes, not that society demanded such an example, but in the history of legislation, wholesale deaths of this character have always spurred the city officials to take some sort of action so that there would be only a remote possibility of the incident recurring.

The fire chief should take the "flaming torch and hold it high." Regardless of the motive that prompted the decision such as that made by the New York city magistrate, the fire chief should assume the leadership in a campaign to ensure that conditions in his city will not make a duplication of such an incident possible. By means of the authority with which he is vested, and by means of the various agencies of propaganda that are at his command, he should call to the attention of the public, the seriousness of the practice of admitting minors to a theatre who are not accompanied by an adult. The good work should not be permitted to lapse.

A Bad Precedent

A most short-sighted act is that of the Massachusetts Legislature in refusing to pass a bill legalizing the payment of the expenses of fire chiefs and other public officials in attendance at conventions. Such a bill was introduced, following the ruling by the state attorney general that the payment of such expenses under the present law was illegal.

The bill defeated provided for the payment of necessary expenses by the cities and towns of the state incurred in entertainment incident to the holding of conventions; for the entertainment of distinguished guests, and for the procuring of proper representation at conventions held in any part of the United States and Canada.

The defeat of this measure is one more instance of the tendency of state legislatures to false economy. In this case, to save the cities a few dollars, the legislators have sacrificed the opportunity of improving the knowledge of their fire chiefs and the efficiency of their fire departments, through contact with those of other municipalities.

Besides the lack of wisdom of this action, it entails a distinct injustice to the fire chief who has the ambition to better fit himself for his job by attending fire department conventions. Why should he be compelled to pay his own expenses to, from and at such a convention? He is undeniably working in the interests of his department in attending such a meeting. The one purpose of the I. A. F. C. and its subsidiary sectional and state organizations is to bring the chiefs together for the purpose of improving themselves in all matters relating to fire-fighting, fire prevention and fire department management and practice.

The entertainment features of these conventions are incidental, and are only intended to lighten such gatherings and make them more attractive to the members, thus increasing the attendance.

If the legislature is to declare in effect that to pay the chief's expenses to such gatherings is illegal, then to be consistent it should also forbid the expenditure of funds to maintain firemen's schools and in fact, any form of instruction for the firemen.

In the meantime many chiefs will have to forego the invaluable experience of a national or state convention, because with their only too meager salary they cannot afford to spend the money entailed in such a trip. Thus the city or town loses this valuable aid to the efficiency of its fire chief and his department, because the legislators of the state have forbidden the spending of the few dollars necessary to this end, in a mistaken idea of economy.

Use the Tools Provided

The destruction of a large bedding factory in a southern city recently, has brought out very forcibly and in a most costly manner that many fire department officers fail to appreciate the assistance that they receive from a well designed sprinkler system. The battalion chief who responded was informed that the gate valve that controlled the system was closed but very little effort was made to place the system in operation again.

In addition there were two smoke helmets available for entering the smoke-filled room, but rather than use these and place the sprinklers back into operation, it was deemed more expedient to fight the fire from the outside by means of hose streams.

Of what good are tools and the latest devices for the protection of property if the fire department officers are not cognizant of their value in preventing the spread of fire and the destruction of property? A prominent tool manufacturer adopted a slogan, "does a good job better." Imagine, then, how much more efficiently and effectively

the fire department could have done their work, had they utilized the tools that they had available.

Advantages of Setting Up Exercises

The modern fireman must above all things be physically fit. The strenuous work which he may at any time be suddenly called upon to perform, in rescue work or in fire-fighting, requires muscles that are always in the pink of condition.

If they are not—if there is any tendency toward flabbiness or weakness, the result may be disastrous to himself and to those he may be called upon to assist or to his work in fighting the blaze, where strength and steadiness are called for to the highest degree.

This being the case, every means should be adopted to develop and strengthen the muscles of the fireman. One of the best methods of accomplishing this is by the employment of calisthenics and setting up exercises. These means of strengthening the men's development, if regularly used and properly taught by a qualified instructor, are admittedly first in the list of methods of hardening the muscles of the human body. They are used regularly by the United States Army and the militia of the various states for this purpose.

The use of this system by the fire department is, therefore, in line with the best practice of experts in the development of the human body. Any means by which the efficiency of the individual member may be improved should be embraced by the chief and the employment of this excellent method of development is a wise move in all cases.

There is another reason, and an important one, why well regulated exercise is an advantage to the members of the fire department. This arises from the fact that well trained muscles, properly and scientifically developed, result in the proper functioning of the organs of the body, and this coordination of the organs means clear thinking and an alert mind. This is of the utmost importance to the fireman, who may be called upon at any time to exercise judgment and think quickly in emergencies, in which his decision may mean his own life and those of others.

Those chiefs who have not inaugurated a system of setting up exercises as part of the routine of their departments, should carefully consider the many advantages contained in this system and act accordingly.

Wins Suit for Neighbor's Neglect

In a town in Michigan, fire was caused according to the testimony presented, by the negligent operation of a furnace in the basement of a grocery store. The fire ignited a pile of rubbish that was near the furnace, and it spread to an adjoining store in the same building. The tenant of the adjoining store brought suit and tried to collect for the damage done and for the loss of business. He sued for $6,500, and a jury in the circuit court of Kent County awarded him $5,000 damages.

California to Try for 2% Tax—A bill is being prepared for introduction in the state legislature of California for taxing foreign insurance companies two per cent of the insurance premiums. The money thus derived would be used to support the pension fund for firemen.

PORTLAND CONVENTION AUGUST 9, 10, 11 AND 12

Announcement has been made by Executive secretary Jay W. Stevens, of the International Association of Fire Chiefs, that the above dates have been set for the 1927 Convention of the Association.

This date was decided upon at a meeting of the Directors of the Association at Portland, Oregon, on January 29th.

At the same meeting the officers of the Pacific Coast Association of Fire Chiefs voted to affiliate with the International, bringing in 1100 members. This action is subject to ratification at the next annual Convention of the Pacific Coast Association.

Bookings of "The Fire Brigade" Increase

Additional bookings of the "Fire Brigade", the motion picture sponsored by the International Association of Fire Chiefs, are being received daily. The following list contains the additional bookings that have been received since the publication of the first list in the previous issue of FIRE ENGINEERING.

CITY	THEATRE	DATE
Alabama		
Selma	Academy of Music	March 22-23
California		
Auburn	Auburn	April 12-13
Davis	Varsity	March 6-7
Dixon	Palace	March 9-10
Mt. Shasta	Shastona	March 27-28
Oroville	Rex	March 17-19
Connecticut		
Bristol	Princess	Feb. 6
East Haven	Community	March 25-26
Essex	Essex Square	March 24-26
New Haven	Garden	March 29-31
Plainfield	Lily	April 21-22
Saybrook	Town Hall	May 28
Southington	Coleman	April 25
Waterbury	Strand	Jan. 29- Feb. 2 Changed from Feb. 6-9
Florida		
Mulberry	Star	March 4-5
Georgia		
Columbus	Ft. Beming	March 10
Columbus	Grand	March 14-17
Ft. Screven		March 20
Ft. Oglethorpe		March 17
Illinois		
Chicago	McVickers-Royal	Feb. 28 changed from April 11
Hutchinson	Midland-Royal	Feb. 28-March 5
Iowa		
Sioux City	Princess	March 20-26
Woodbine	Woodbine	March 8-11
Indiana		
Indianapolis	Apollo	March 27-April 9
Kansas		
Pittsburgh	Colonial-Klock	March 7-10
Massachusetts		
Fall River	Rialto	March 6-12
Michigan		
Petosky	Hollywood	April 30; May 1-2
Alma	Strand	April 10-12
Greenville	Silver Family	March 13-14
Romeo	High School	April 25-27
St. Louis	Liberty	April 26-28
Minnesota		
Jamesville	Princess	May 24-26
Shakopee	Gem	May 16-18
Nebraska		
Omaha	Sun	Feb. 22-March 3

(*Continued on page* 142)

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Ammonia Hazard at Open Flame

To the Editor:

The question has come up in our department as to the hazards, if any, that are encountered by having an ammonia refrigeration plant and the hot water boiler, with an open flame in the same room. This condition exists in one of our local hotels.

Your courtesy in answering the above will be appreciated.

Very truly yours,
B. J.

Answer: If leaks of ammonia can be absolutely prohibited in the furnace room, there will be no hazard in connection with having the ammonia refrigeration plant and the open flame of the hot water boiler in the same room.

But when you recall that ammonia leaks are always occurring, and that ammonia fumes when mixed with proper proportions of air produce an explosive mixture, I think that you will appreciate that permitting the refrigerating plant and the open gas flame in the same room is indeed dangerous.

It is true that the number of ammonia gas explosions is small, but records show that where they have occurred the damage has been great.

The Morris Packing Company explosion in Chicago may be cited as an example. At this explosion an entire wall was blown out of a building and killed the fire chief and 22 of his men. You are justified in demanding the remedying of the conditon in the plant you describe through the segregation of the open flame and the ammonia apparatus.

Qualifications of Fire Chief

To the Editor:

Below are several questions which I would appreciate having you answer for me.

Question 1. If you were to pick a chief of a fire department what kind of material would you look for?

2. If you were appointed chief of a fire department where there has never been any discipline, and the personnel and morale of the department poor, what would be the first thing to do?

3. How would you handle the various duties in connection with the office of fire chief in order to make good; by such duties are meant inspections, fire hazards, reports, etc.

4. If you were to examine a number of applicants for the position of chief, how would you go about it? Would you have a number of questions to ask them about things that a fire chief should know? What questions would you ask?

Very truly yours,
F. K. F.

Answer 1. The questions you have asked are in indeed hard, if not impossible, to answer in view of the fact that the qualifications for chief for different size cities vary as widely as do the population of the cities.

We will, however, attempt to offer answers to those questions which can be readily answered.

The qualifications of the man chosen should include the following: Experience in handling men; experience in fire department work; a good physique; enthusiasm in the type of work to be assigned to him.

Answer 2. Prepare a set of rules and regulations governing the men of the department, and covering their deportment, if such rules and regulations are not already on hand. Have these rules and regulations adopted by the governing body of your city, and make sure that the rules and regulations as passed upon give you the authority to enforce them. With this authority you are then in a position to see that discipline is administered in the proper manner.

Rules and regulations should be patterned after those of one of your neighboring departments which has had experience in organizing and disciplining its fire force.

Just as soon as they are in effect then it is up to you to see that they are rigidly observed. You should be prepared to prefer charges against members of the department who violate these rules. One or two such charges will quickly let the force know that you are in earnest and will result in good all the way around. Firemen, you will find, appreciate fair play and are always willing to co-operate with you to the limit. On the other hand absolute fairness must be shown—there must be no partiality.

Answer 3. This is a big order. Probably the first thing to do would be to post yourself on the fire hazards in your city. Determine what features about the various industries and establishments are hazardous from a fire standpoint. Make your inspections periodically, carrying out the main inspections of the larger plants yourself and to the smaller establishments you may delegate your assistant, or rank and file of the department to do the work, after fully instructing them as to what their duties will be. Greater results can be secured through thorough inspection than through fire fighting. In other words, preventing fires is a better way of reducing fire loss other than fighting fires once they have gained a start.

Handle your department efficiently, and inform yourself on up-to-date methods of fire fighting operations so that you will be in a positon to lead and direct your men.

Bear in mind that the duties of the fire department include the saving of life and property from fire. These points should be foremost in your mind at all times and all efforts must be directed toward accomplishing results along these lines.

Answer 4. The usual method of examining applicants for the position of chief of the department is through written examination. This is fair as the various candidates will have equal opportunity of making the grade if they are properly fitted for the work.

Examinations in the form of an interview are seldom satisfactory for they cannot be considered as impartial as the written examination where the names of the candidates are not disclosed until after the papers have been marked.

Hence the first thing that would be done would be to call the examination for a definite date and submit the various candidates to a written examination.

The questions to be asked would include topics showing the candidates' fitness for the work. These must necessarily entail questoins on operations at fires, methods of extinguishing, hazards, methods of making inspections, governing the department, and finally questions showing the candidate's familiarity with laws and ordinances including rules and regulations if such are in force.

As to the questions to be asked, this would be impossible to state unless a thorough knowledge of the city and the state of organization of the fire department as well as its equipment is known.

The above, you will appreciate, is only an outline. It is as noted in the answers—impossible to give you specific questions which might be asked.

Possibly the best advice that could be given you would be that you secure some of the standard books on fire department matters, such as "Questions & Answers for Lieutenant & Captain," etc. Study these books and you will find it will take you a very short time to become familiar with the field and secure the necessary knowledge for successfully passing any examination which you might meet.

Buffalo Promotional Questions

To the Editor:

Would you please favor me with answers to the following questions? I am a Buffalo fireman and if possible would like to receive an early reply to the same. We have been subscribers to FIRE ENGINEERING for some time, but cannot find the answers to these questions.

Thanking you for your prompt attention, I am,

Yours very truly,
C. W.,
Fire Dept., Buffalo, N. Y.

Question 1: Name a device for torn hose, while working at a fire.

2. Could a gas well fire be extinguished with hose streams? Answer Yes or No.

3. Is soda and acid tank lined with copper?

4. Can a soda and acid extinguisher with a loose stopple be successfully used on an auto fire truck? Answer Yes or No.

5. Would a stream of water be nearly as effective as a stream from soda and acid on a fire in the open?
6. Which is a better coating for ladders, paint or varnish?
7. Two lines of hose—one 3½" single line—the other 2½" siamesed, which will have higher pressure at the nozzle?
8. Is there any danger from slacking lime in open space? Answer Yes or No.
9. Are there any hose nozzles that develop a discharge efficiency as high as 95%? What are they?
10. Water thrown on intense fire, is water actually vaporized? Answer Yes or No.
11. Will force of stream striking a steel beam in a fire bend the beam? Answer Yes or No.
12. Why does fire spread upward?
13. Name three methods of stopping fire. Could standpipes, sprinkler systems and pressure tanks be named?
14. How are iron and steel affected by fire? Does it lose temper and warp and soften?
15. What happens to gas when heated—does it ignite and explode?
16. Name three agencies that will spread fire—will gasoline, oils and chemicals?
17. In a six story building, which is most dangerous to fight: fires in basement, first floor, third floor or cockloft?
18. Where will fire travel unseen?
19. Water thrown on fire in warehouse—where there are bales of clothing, granite utensils, furniture, crates, dishes, which would you have to be most careful of?
20. Can a New York hose nozzle be called a hose pipe?

Answer 1. A hose jacket is a device used for mending leaky or torn hose at a fire.

2. Yes.

3. Small extinguisher tanks are usually made of copper entirely. The larger tanks are usually of seamless, drawn steel, and are lead or tin covered on the inside.

4. No.

5. Where the diameter of the soda and acid stream and the water stream are the same, their effectiveness is precisely the same on open fires.

6. Varnish makes a better coating for ladders than paint for it does not conceal any defects in the wood which may exist or which may develop. Modern varnishes are much more durable and will stand water and fire exposure better than paint.

7. The layouts to be compared in question 7 are as follows: A single line of 3½" hose and parallel lines of 2½" hose, each one supplying the same size tip and each layout being of the same length; that is, the length of the 3½" hose single line will be exactly the same as the length of parallel 2½" lines (twice as much 2½" hose being used).

Under these conditions the 3½" line will have the higher pressure at the nozzle as the friction loss in the 3½" line is less than in the parallel 2½" lines.

8. No.

9. Any of the plain hose nozzles develops a discharge efficiency higher than 95%. Special types of nozzles, such as those intended to produce sprays or water screens, frequently fall below 95% discharge efficiency.

10. Yes.

11. No.

12. Fire spreads upward due to the fact that the heated gases and air are lighter than cold gases and air. This is well illustrated in the toy balloon. These balloons may be inflated with air but they will not rise. However, just as soon as the air within them is heated by a torch provided for that purpose, the balloons rise quickly. It is the presence of heat, and the resulting expansion of air and gases by being heated, that create the force upward. This force naturally produces a motion of the gases and heated air upward with the result that fire spreads in the same direction.

13. Methods of stopping fire include: Smothering it; cooling the materials down to a point below the reignition point; and blowing the fire out by concussion (snuffing it out).

Standpipes, sprinkler systems and pressure tanks could not be named as three methods for they are devices rather than methods.

They all extinguish fire in the same manner, namely, smothering or cooling to a point below ignition point.

14. Iron and steel lose their temper and warp upon being heated and cooled. Losing of temper is particularly the case where they are cooled gradually. When suddenly cooled after being heated, iron and steel may become even harder due to the process of tempering.

15. The answer to this question depends upon whether or not the gas is in contact with air or whether it is closely confined by itself; also it depends upon the mixture.

There are practically no elementary gases encountered in fire department operations which will burn by themselves. They all require the presence of oxygen. If, therefore, they are confined in containers and kept isolated from the air surrounding them the usual result of heating is an increase in pressure due to their tendency to expand upon heating. As long as the container withholds the pressure, there is neither ignition or explosion. If, however, the container gives way and the gases come in contact with air and at a temperature equal to or higher than their ignition point, they may ignite and explode.

Gases when heated in the presence of air, if these gases are inflammable, may burn very rapidly or create the so-called explosion. If confined in the presence of air and heated to a point equal to or above their ignition point they may ignite and expand, doing tremendous damage.

16. The three methods by which fire may spread are: convection, conduction, and radiation. However, these methods may not be classed as agencies; if it is assumed that by "agencies" are meant materials or structural conditions which promote spread of fire, then under this assumption the following three agencies are cited; vertical shafts, such as in partitions; inflammable gases; highly inflammable liquids.

17. Of danger to property, fire in the cockloft may be considered the most serious. It is hard to get at, it will spread rapidly, and the surrounding materials are usually in a much more inflammable state than where they are encountered on other floors.

But from the standpoint of hazard to the men operating at the fire, possibly the fire in the basement is the more dangerous. At least records show that more men are knocked out at basement fires than at any other type of fire. This is due to the difficulty in ventilating and the fact that men are forced to work at close quarters.

Fire department operations are now such that fires occurring on the second, third, or fourth floors of buildings where there are floors both above and below are quickly brought under control due to the practice of covering exposures, providing ventilation and getting streams in operation.

The cock loft fire offers many difficulties in addition to those encountered on other floors of buildings due to the inconvenience in getting to the roof and the danger of men operating on the roof when fire has gained headway in the cock loft. Then, too, the absence of openings through which streams can be directed makes a fire in the cock loft one which is hard to bring under control.

On the other hand a fire in the basement of a building outside of the danger to the firemen, is quite convenient to handle. Lines can be quickly stretched in and exposures covered.

Of course if the basement is occupied by a highly combustible occupancy then the story is a different one. However, in making a comparison of this sort it is necessary to assume conditions at least similar.

18. Fire will travel unseen up partitions and through other vertical, enclosed, ducts.

19. If the fire were a minor one and the fire damage would not amount to much nor would the water damage, then the streams should be kept away from bales of clothing and the dishes.

If the fire, on the other hand, was gaining headway and was apt to involve a large part of the materials on the floor then the clothing would be the artioles from which the streams should be kept away.

Dishes in warehouses are usually stored in crates, well packed with excelsior. In this case no attention need be given them as they are not subject to injury. On the other hand the clothing is always subject to damage from water and for that reason streams of water should be kept away from it.

The next in order would be furniture. Granite utensils, in crates, would not need such great care at fires.

20. The designation "New York Hose Nozzle" is very vague. It may apply to the bent pipe used for work in partitions, it may apply to the New York type of shut-off and it may also apply to the long or short plain nozzles. Some text books refer to it as being the bent pipe while others take it to mean the shut-off, or straight nozzle.

The long type of New York Nozzle may be called a hose pipe though the short type should be classed as a plain nozzle.

Battery Charger Wrecks Building

In a Canadian town, a customer at an auto supply store purchased some gasoline and placed the can, that had an open top, about seven feet from a vibrating type of battery charger. This type of charger usually gave off some sparks, and in about three minutes a violent explosion took place which destroyed the office. Only the efficient work of the fire department saved the adjoining building from destruction.

Platteville, Wis., Has New Siren—Platteville, Wis., has purchased an electrically operated siren.

COLLAPSE OF FLOORS, WEAKENED BY FIRE, KILLS THREE FIREMEN

Added Weight of Water-Soaked Shoddy in New York Warehouse Precipitates Five Floors—Two Companies Trapped—Six Injured

By WM. JEROME DALY.

A COMBINATION of unprotected floor beams and porous wood flooring, weakened by fire which burned through three stories of it, plus the burden of water-soaked bales of shoddy and clippings piled ceiling high, caused the collapse of thirty feet of the rear of the top floor of a seven story factory and loft building, which in turn struck and dislodged a similar area of the 6th, 5th, 4th, 3rd and 2nd floors, piling all of them in a tangled mass from the cellar upward, trapped two companies of firemen, killed three of them and seriously injured six others in a fire at No. 144 Goerck street, a block from the East River on the edge of the Ghetto in the lower part of Manhattan Island on Thursday night January 27th.

Not in several years has the New York Fire Department suffered such casualties at one fire. On the night following Captain John S. Roberts, of Engine Co. 15, having worked unceasingly for nine hours digging through the ruins for missing firemen, collapsed from exhaustion and died at an insignificant fire not far from the Goerck street blaze. Roberts was worn out but declined to report sick when the suggestion was made to him by his lieutenant.

The Goerck street building is seven stories, brick, 100 x 25, erected about 25 years ago, although no official record of the date of its construction could be obtained from the department of buildings. It was constructed for what in those days was commonly called a sweat-shop. It had been used for various occupancies since, and a year and a half ago it was the subject of alterations at which time the stairway was ordered enclosed in wire lath and plaster, the fire escapes front and rear were ordered equipped with counter-balance stairways and all doors were metal covered. During the World War the building was in possession of the Alien Property Custodian, title at that time having been in the name of a relative of the late Supreme Court Justice Henry Bischoff.

The occupancies at the time of the fire on January 27 were: 1st floor, pickles; 2nd and 3rd, wooden refrigerators; 4th, leather goods, principally children's school bags and leather novelties; 5th, shoes; 6th, unoccupied and 7th, shoddy, clippings and by-products from the sweepings of the garments trade.

There were no adjoining structures of equal height, excepting for a seven story factory flush with the north wall for about fifteen feet as indicated on the sketch. The building was equipped with iron shutters on the windows of the north and south walls. The windows on the front and rear walls were wired glass. The iron shutters on the side-walls were in most instances found open. That afternoon an inspector from the labor department had been in the building to inspect first aid kits. The elevator shaft was of brick and plaster. The stairway was wood, enclosed with wire lath and plaster, with metal sheathed doors. The building had electric light but was heated by coal stoves owned and operated by the individual tenants.

The floor beams were wood, 12 x 2½ inches, unprotected by exposed ceilings. The flooring was wood, single ply, about ⅞" exposed ceilings. The flooring was wood, single ply, about ⅞" thick, badly worn and characterized by fire department inspectors as—"you could see daylight through the floors."

There were no violations against the premises at the time of the fire. The previous fire in the building was in 1921. It was insignificant and the loss was fixed at $100.

How the fatal fire started is not now and probably never will be known to the authorities. It originated on the 4th floor in the rear of the loft where the leather goods concern was doing business. This firm had been there for eight years and never had a fire before, so far as the records disclose. The leather manufacturers declared the fire in their particular coal stove had been extinguished at the close of business at 5 o'clock. They declared further that they were insured for about one-half of the value of their stock and that they had many orders on hand for manufacture, and that a fire was most disadvantageous. The last persons known to be in any part of the building had departed at 6 o'clock.

The fire was discovered by two boys playing in the street. One of them pulled the street box, Station 416, at Goerck and Houston streets. The alarm was received at 7:51 o'clock. The first engine company to arrive was No. 11, located two blocks away. This alarm brought four engine companies, two truck companies, one fireboat and the chiefs of the 4th and 3rd battalions in the order given. The building being in the high pressure zone, the firemen found 125 pounds on the hydrants. The first chief officer in was Jacob Levy, followed by Daniel Carlock.

Chief Levy ordered Engine 11, accompanied by Truck 11, up the stairway to the 4th floor. Engine 15, the second company in, was ordered up the front fire escape. Levy found fire in possession of the 4th, 5th, 6th and 7th floors. It had apparently been burning for more than an hour. The building had no watchman and no automatic alarm. The third company went up the rear fire escape, and the fourth company up the stairway of the adjoining seven story building. Chief Carlock went to the rear.

Having surveyed his fire and placed his companies, Levy ordered a second alarm. This was recorded fifteen minutes after the first alarm. The fireboat (The New Yorker) Eng. Co. 66 had arrived on the first alarm and without losing time to stretch a boat line, Levy ordered the boat crew to take a second line off Engine 11. This line was sent up the front to the fourth floor to replace Engine 15 which had been ordered to go higher. Two deck pipes were operated on the front.

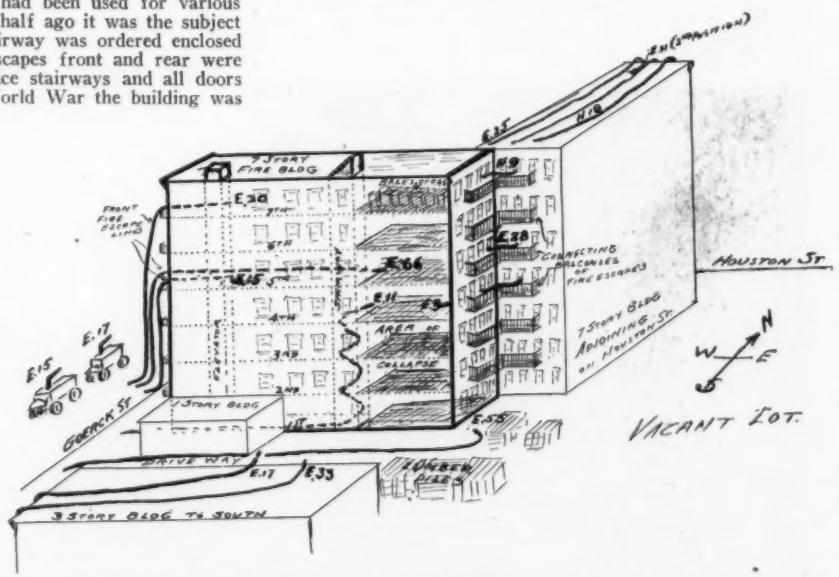


Diagram Illustrating the Conditions of Fire-Fighting at the Time of the Collapse of Five Floors in the Goerck Building, New York City, Showing Where Men were Operating When the Floors Fell Upon Them and the Position of the Fire Apparatus.

The second alarm brought five engine companies, one truck company, searchlight, fuel wagon, boat tender, rescue company, Deputy Chief Helm of the 2nd Division, Deputy Chief Worth of the Marine Division and Assistant Chief of Department, Joseph B. Martin, the ranking officer under whom the fire was fought. The pressure was raised then to 150.

The companies were placed as indicated on the sketch. The fire, as a fire, was not unusual. It was fought and controlled in the customary way within an hour. At about 9:15 o'clock when most of the second alarm companies had shut down prior to overhauling, the beams of the 7th floor sagged or yielded to the dual condition of having been burned and weakened and weighted by water soaked bales of shoddy, piled to the ceiling. The beams pulled out of the sockets in the south wall, dropping to the 6th floor which in turn struck and knocked out the beams of the 5th floor and likewise all the way down on the south side of the building this condition followed in succession until the mass of debris stood end up against the north wall.

The collapse came with a suddenness that contained not the slightest warning or other audible or physical indication of impending danger. The condition of the 7th floor had been recognized and therefore all hands were ordered to stay clear. The holes worn in the flooring did not relieve the water because of the sweepings on the floor which prevented the escape of the water. The water on the 7th floor by reason of this stoppage, reached an elevation sufficient to cause it to overflow and spill out the window sills 2½ feet high.

What evidently gave the fire officers a false sense of security below the 7th floor was the fact that the 6th floor was vacant and by reason of such emptiness was the least burned and outwardly safe. The 6th, 5th, 4th, 3rd and 2nd floors probably never would have collapsed of their own weight or condition, had it not been for the impact caused by the collapse of the top floor.

The collapse trapped and hurled with it the crews of Engine 66 (fireboat New Yorker) and Engine Co. 9, the latter a second alarm company. They were operating where indicated on the sketch. The fireboat company was about through with its work. Lieut. Gray of Engine Co. 66 had just turned to go toward the front to announce that his company was of no further service, when the collapse took place. He was caught too, but only injured.

The collapsed portion of the floor area extended from the rear wall as far front as the stairway header beam, which was about thirty feet. It was at this point in all of the floors that the collapsing was arrested. Strangely, no part of the rear or sidewalls was disturbed. Indeed, the dislodgement of bricks was almost entirely negative.

The collapse caused quick calls for four truck companies and the Department Ambulance, as well as several public ambulances from Bellevue and Gouverneur Hospitals. Fire Chief John Kenlon responded and took personal charge of the rescue work. Fire Commissioner John J. Dorman deserted his place on the dais at a dinner in his honor in Columbus Council, K. of C. in Brooklyn and hurried to the scene. Fire Chaplain Patrick F. O'Connor and others of the clergy soon arrived.

Honorary Deputy Chief Edward J. Kenny stretched portable flood lights into the rear of the building and the task of rescue was on in all earnestness. Some of the trapped firemen could be heard calling out to their comrades. The injured were reached as quickly as any human agency could reach them and rushed off to hospitals. It was two hours before the first dead fireman was found; another was dug out in three hours. These two were members of the fireboat New Yorker. It was six o'clock next morning before the third body was recovered. He was a member of Engine Co. 9. This man was found with the pipe in his grasp.

The men rescued were numb, wet as drowned rats and shocked terribly. They were mangled or broken somewhere. Fireman Sweeney of Engine Co. 9 was found to have a broken jaw and a fractured skull. Fireman Anzelone of Engine 9 was rescued from a position in which he was found head downward. He was pinioned by the legs and his arms were wedged in such a manner that with the fingers of one hand pressed by debris against his face, he managed to keep water from entering his mouth. He said later at the hospital that the water was rising about him in such volume that he thought for a time that he was in the cellar.

Honorary Deputy Chief R. H. Mainzer, one of New York City's foremost fire fans rendered great aid to the men as they were carried out. All of them needed stimulants. They were trembling, Chief Mainzer scurried around among the neighborhood drug stores and offered $10 a pint for whisky. He had no prescription. He showed his badge, told who he was and so forth, but it was in vain at ten different drug counters. Finally, at the eleventh attempt he succeeded in obtaining a pint for $5.75 and over his own signature, he gave a written notice to the drug clerk in lieu of a prescription and declared that he invited a test of the case, but so far no test has been made by Uncle Sam.

Interior of the Goerck Street Building After the Collapse of Five Floors, Showing Part of the Water Soaked Bales of Shoddy and Clippings on the Top Floors Which Did Not Fall, and the Immense Amount of Wreckage that Buried the Fire-Fighters.

FOUR FIREMEN DEAD, MANY INJURED, IN WINNIPEG, CAN., THEATRE FIRE

Collapse of Wall Causes 4 Deaths and 11 Men Injured—Men Hampered by Biting Cold Weather With High Winds

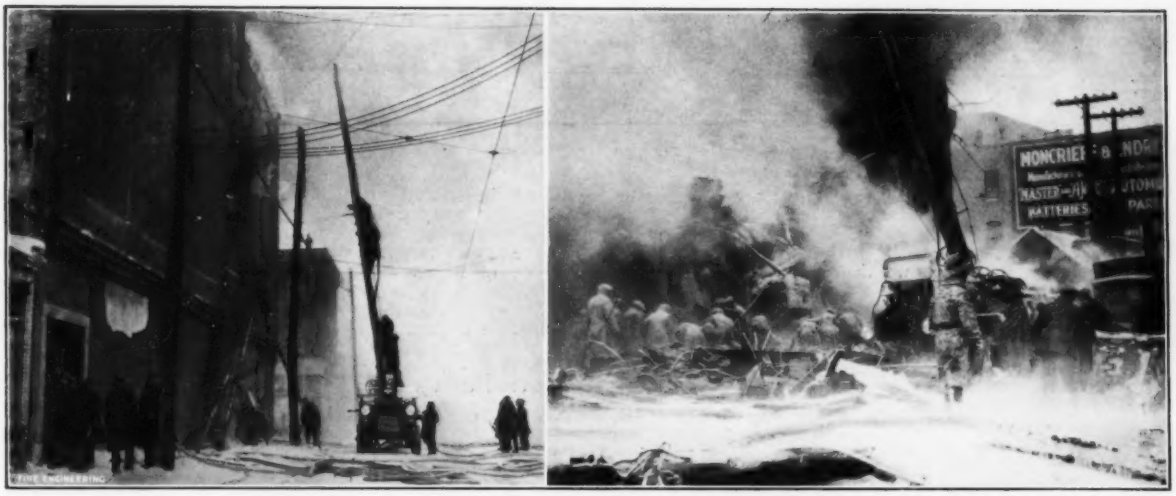
FOUR firemen are dead and eleven were seriously injured as the result of a morning fire which razed the Winnipeg Theatre at Winnipeg, Canada.

The building occupied a space one hundred feet square and was constructed of brick veneer. The theatre which had a balcony was not of modern construction—the building itself was forty-three years old. The private protection consisted of an interior standpipe with fire department connections, and hand fire extinguishers.

The Theatre Fire at Its Height.
Thick clouds of smoke covered the district as the firemen fought a losing fight hampered by below zero weather and high winds.

How the fire started is not known. The first alarm was received at 10 a. m., and later a second alarm was sent in. When the first company arrived, the stage, wall and roof of the theatre were on fire. Several of the men advanced through the theatre lobby with a hose line to the stage where the fire was located. They heard the beams cracking and they were forced to retire. The men were only inside the theatre for about six minutes when they started to retreat.

The theatre wall crashed without warning, burying a number of the firemen. The officers in charge did not dare to send a rescue party to uncover the men for fear of a further crash and the possibility of losing more of the company. The ones



Courtesy, Winnipeg Free Press

Scenes of the Theatre Fire That Caused the Death of 4 Firemen and the Injury of 11 Fire-Fighters.

Left—The wall of the theatre before the fatal accident. Note the men working towards the inside of the building. Right—Looking for the bodies of the firemen who were killed when the wall of the Winnipeg Theatre gave way.

who were injured were removed to a place of safety, but those who were killed were permitted to remain beneath the pile of debris until it was safe to work that close to the building. Luckily there were no men in the theatre when the wall gave way.

The crash of the walls came without any warning. On the Adelaide side of the theatre, the top of the wall caved into the theatre but the middle of the wall fell onto the street.

Chief Buchanan believed the fire started in the west side of the theatre near the stage for when the department arrived, the flames had roared up the curtains in the rear to the top. There was no fire in the basement and the seats were still standing.

Three of the men who were buried in the wreckage and eight of the men who were removed to the hospital for treatment, were members of Station No. 2. Being the first to arrive at the fire, this company bore the brunt of the fatalities.

One of the men of this company was caught in the wreckage and he observed an opening through which it was possible to escape. He started to clear away a hole through which he could wiggle his body and when escape was almost in sight, a large

(*Continued on page* 146)

The Collapse of the Wall that Buried the Firemen During the Theatre Fire in Winnipeg, Canada. Some of the Men May be Observed directly in the Path of the falling wall.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

Rural Engine Companies Co-operate*

As efficient as a rural fire department may be, the men are often handicapped through the lack of an adequate water supply. With the idea that fires in country districts are often very near to tragedies, the firemen in the Woonasquatucket Valley in Rhode Island have been working about a year developing a system of passing water from rivers or ponds to another which relays the water to the fire.

The work had been carried on by the Woonasquatucket Valley Firemen's League, which is made up of eleven fire companies from districts that vary from almost city conditions to a cross-roads where there are not enough houses to call it a village. Most of the pumpers carry one thousand feet of double jacketed hose and the majority are rated to pump about four hundred gallons per minute. There is nothing unusual about the conditions in which this plan operates. The work was started by the Centerdale, Fruit Hill and Geneva firemen, who held a drill last October where two pumpers delivered a single stream through 1,400 ft. of hose. They had water on the "fire" in fourteen minutes after the first call was made to bring them from their stations, which were all about the same distance of a mile and a quarter away. This drill showed that the distance between pumpers could be greater, so one day the pumpers from Johnston No. 3 and Smithfield Districts Nos. 1 and 2 pumped through a line of 4,200 ft., and using one nozzle had a pressure of ninety-nine lbs. Here the local pumper drew water from a small brook until the other two companies were connected to pass water from a large mill pond. Using this small supply that would last only about 20 minutes the local firemen were able to have water on the "fire" in 6 minutes and 30 seconds with a run of 1.2 miles from their station. Here the distances between pumpers were found to be too great, the pressures were high and several lengths of hose were burst.

In the Spring of this year the firemen in North Scituate turned over to the Woonasquatucket Vallay League an old house that had been condemned by the Providence Water Supply Board. It was located 2,300 ft. from a large reservoir, so the engineering committee of the league arranged a relay drill and set fire to the building. Pumpers from Harmony, Lymansville and Smithfield No. 2 companies were stationed a half mile beyond the dam at the reservoir. The engines were started when word was telephoned to them, but the run to the dam was made, hose laid, the pumpers connected up and water on in six minutes. The old house was dry, all the windows had been removed and to make matters worse, while the firemen were setting one end of the house afire, some interloper set fire to the other end so that it looked like a fight to keep it from spreading to the woods, to say nothing of saving the house. Nevertheless in 33 minutes the fire was out, and most of the building standing. Two heavy streams from the last pumper in line had stopped the fire as quickly as if the house had stood on a city corner instead of half a mile from the nearest water supply. Here the pumper that drew water from the pond never went over 125 lbs. on the discharge gauge. Two drills held by the Northern R. I. Firemen's League and another drill by companies from both leagues have furnished additional data to show that if motor pumpers are placed at 1,000 ft. intervals, as many as are available can be connected together to pump enough water for two effective streams if the nozzles are within 500 ft. of the last pumper. The fire will have to consume within 500 board feet of lumber to consume the water discharged every minute. The fire seldom burns as fast as that, but to be prepared for the cases where it does get too hot for this amount of water the firemen are watching the new foams that are being perfected for use on oil fires.

Briefly the results of these experiments have shown that six pumpers, each carrying 1,000 ft. of hose, can deliver two good streams on a fire a mile from a pond. The run can be made and the hook-up complete in 20 minutes, and if there is a temporary supply at hand there will be water on the fire in less than 10 minutes. A study of the maps of the 70 square miles covered by the leagues shows that there is enough water within one-half mile of almost every building, and the work now is to mark these supplies and hold "dress rehearsals" where bad fires are possible. Other sections of the state are organizing similar leagues where problems of drill and engineering are brought up for solution with the result that rural fire protection is changing fast, and another bugbear in country life will gradually disappear.

—Courtesy, *The Rural New Yorker*

Test of Efficiency of Relaying Fire Streams Conducted by the Woonasquatucket Firemen at a Condemned Building

* From the *Rural New Yorker*.

Perry, Ia., Firemen Guests of Council—The fire department of Perry, Ia., were the guests of the mayor and the city council at a banquet held in the fire house. The long tables of firemen were served by the city council members attired in large white aprons. The firemen have often banqueted others, but this time the city council turned the tables.

COURSE OF INSTRUCTION IN FIRE PROTECTION

AS GIVEN AT THE UNIVERSITY OF ILLINOIS

FIRST-AID EXTINGUISHERS

By R. O. MATSON,
Underwriters' Laboratories, Chicago, Ill.

THIS twenty-eighth installment of the University of Illinois Course in Fire Prevention continues an article on the purposes, functions, care and maintenance of first-aid fire extinguishers by one who has made an especial study of his subject and is well qualified to write upon it:

Uses of Carbon Tetrachloride

Carbon tetrachloride is especially suitable as an extinguishing agent for use on flammable liquid fires due to the fact that it is very volatile and in the gaseous state is about two and five-tenths times as heavy as air. When applied on this kind of a fire the stream of carbon tetrachloride should be directed against the side of the container just above the flammable liquid, in order that it may vaporize the more readily and the gas be permitted to spread over the burning surface, excluding the air. Should the stream of carbon tetrachloride be directed into the flammable liquid, a good part of it would sink because of its high specific gravity and have no effect as an extinguishing agent.

Because of its nonconducting property and due to the fact that it has no injurious effect upon such equipment, carbon tetrachloride used in extinguishers labeled by Underwriters' Laboratories is especially suitable as a fire extinguishing agent for use on electrical equipment fires. While it is of course desirable to shut off the current when attacking an electrical fire, this may not always be possible, and in such a case carbon tetrachloride may be used on the electrical equipment without any detrimental effect on either moving parts or stationary parts.

Carbon tetrachloride used in first-aid extinguishers labeled by Underwriters Laboratories is especially treated to remove impurities and contains an important component for depressing the freezing point of -50° F. Extinguishers employing this special liquid as the extinguishing agent do not require protection against freezing.

The one and one and one-half quart carbon tetrachloride extinguishers labeled by Underwriters' Laboratories are provided with a hand operated pump and require pumping during operation. The one quart device is especially suitable for use in garages, in boiler rooms where oil burners are employed, and on automobiles and motor boats. The one and one-half quart machines are especially suitable for use in industrial plants where they will be operated by men. These appliances are given a classification of B-2, C-2, two machines constituting a unit of first-aid fire protection on either Class B or C fires. They should be partially discharged and refilled yearly, whether used or not, to insure easy working action of the pump. Only the special recharges obtained from the manufacturer of the device should be used and under no circumstances should water be poured into the device. Water or carbon tetrachloride not specially prepared might result in corrosion of the pump parts, rendering the extinguisher unserviceable.

The one gallon carbon tetrachloride extinguishers labeled by Underwriters' Laboratories consist essentially of a liquid chamber, a compressed air chamber and a hand pump. The air chamber is normally under a pressure of 100 pounds per square inch, which may be re-established by means of the attached pump. The extinguisher is operated by opening a valve which allows the compressed air to enter the liquid chamber resulting in the discharge of the liquid through a hose and nozzle.

For Special Electrical Uses

The one gallon carbon tetrachloride extinguishers are intended for special use in electrical power stations and industrial establishments where consideration is given to the great amount of liquid employed and where they will be operated by experienced men. Where these extinguishers are used it is necessary to take precautions to protect the user from the toxic effects of the vapors formed. Persons who might be called upon to use these appliances should be familiar with their use and operation, and should be instructed in regard to the hazard involved. An ordinary gas mask, such as were used during the recent war, provides a very convenient and effective means of protecting the operator from the gases formed when the carbon tetrachloride is played on a fire. These extinguishers are given a classification of B-2 by Underwriters' Laboratories for the reason that they are not capable of controlling as large fires in flammable liquids as the two and one-half gallon foam extinguisher; and a classification of C-1 because of the large quantity of nonconducting liquid employed as the extinguishing agent.

These extinguishers should be inspected periodically to determine whether the air pressure is maintained and the pressure should be re-established to 100 pounds per square inch when necessary. Only special carbon tetrachloride obtained from the manufacturer of the extinguisher should be used for recharging.

Change Made in Foamite-Childs Force

Norman F. Kimball, assistant general sales manager of the Foamite-Childs Corporation, has been placed in charge of all advertising and sales promotion work. For a number of years Mr. Kimball was connected with the Underwriters' Laboratories, and later he was with the manufacturing and engineering departments of the Foamite-Childs Corporation. This all around experience fits him admirably for his new work.

Chief Meginnity of Detroit, Retires

Chief Edward H. Meginnity, head of the fire department in Detroit, Mich., is on his last leave, prior to his retirement from the service on March 1.

Hoarse of voice from failing lungs, nervous and flush of face, Chief Meginnity addressed the members of the fire commission and told them that because of his ill health it was necessary for him to retire.

The department records show that he was born on October 21, 1859 and joined the department May 1, 1882 as a ladderman. At that time he was a call man and had served only when an alarm sounded. Employers were not very keen about hiring a man that would drop work to rush to a fire, but Mr. Meginnity finally found work as a steam fitter.

Chief Edward H. Meginnity

In 1886 Ladderman Meginnity became lieutentant and two years later was advanced to the position of captain. While serving as captain, he was cited a number of times for acts of heroism.

Chief Meginnity was advanced to the head of the department on August 1, 1925. He was only chief for seventeen months before he was forced to retire as the result of an illness aggravated by smoke conditions in 1901. At that time he was incapitated for twenty weeks, and in 1921 for fifteen weeks. In his forty-five years of service he has seen the department grow from twelve companies to its present force of ninety companies.

The Chief is now on a thirty-day leave and he intends to leave for Florida in an attempt to regain his health. His successor will not be named before March 1, when the retirement becomes effective. Assistant Chief Stephen J. DeMay is now acting chief.

San Francisco to Have Two New Towers—The fire commission of San Francisco, Cal., voted to purchase two new water towers. The apparatus which will be made by the Union Machine Company will cost $11,300 exclusive of the chassis.

INDUSTRIAL PLANT PROTECTION

How Can Costly Fires Be Avoided*

By K. D. HAMILTON, Plant Engineer, and R. S. MOULTON, Assistant Secretary, National Fire Protection Association

THE following is a continuation of the article that appeared in the December 25, 1926, issue:

One of the great difficulties on sprinkler risks is endeavoring to cover all portions of the plant. Some companies take the position that they will equip modern buildings with a sprinkler system, but that the old equipment does not warrant this protection. No institution is worthy of a preferential insurance rate unless all portions of the plant are thoroughly protected by sprinklers.

Different spacings of heads are required for frame construction than for slow-burning mill-type construction, or for reenforced concrete. Regulations also cover alarm systems, water supplies, steam connections, underground piping, and automatic features of various equipments. To obtain full credit from insurance companies, the plan for sprinkler designs must be approved by their engineering departments.

The necessity for care in the selection of contractors to install springler systems should be apparent. Well organized maintenance departments in the larger manufacturing companies are in a position to do sprinkler work, but plans and specifications should be approved by the Board of Fire Underwriters. Some manufacturers of sprinkler equipment refuse to sell equipment unless it may be installed by their own erecting engineers. Their argument is that they cannot guarantee the operation of a system without installing it with their own crews.

A sprinkler system should have two water supplies; a municipal system—and a gravity tank, pressure tank, automatic fire pump—or some combination of these.

For many plants located in the rural districts, there is a private water supply from a reservoir, from wells, from a brook, or from a river. It is necessary to provide pressure, either from an elevated tank or from a fire pump. Many plans combine city water connections with a private reservoir or an elevated tank. With a dual system of water supply, the insurance rates are lower.

All fire pumps should be thoroughly tested daily, to be sure that they are operating properly.

When city water is used for fire pumps or for sprinkler systems, several connections should be made, so that even in case of the breakage of a pipe or of the careless closing of the main valve, the water supply will be maintained.

Overhead tanks present a maintenance problem of major impartance. Tanks constructed of wood should be thoroughly inspected at least twice a year. Drain them out, and remove the sediment which has collected in the bottom. Test the wooden planks of the tank for rotting, and be sure that the coil which is located in the tank to keep it warm during the winter season is in good condition. Thoroughly paint the tank on the outside, and inspect the iron rings which brace the tank against interior pressure.

Steel tanks should be checked over in the same way, and should be thoroughly painted at least once a year. Be sure that the supply pipe is free and clean. Inspect the steam supply system to see that the tank can be kept warm during the winter months.

Caution all carpenters and building mechanics that under no circumstances should they build partitions, or put up belt, belt guards, benches, or other equipment which would tend to interrupt the flow of water, so that the fire might gain headway before the water reaches it.

Make it a practice to clean all fire-pump reservoirs at least once a year; especially if they are fed from a brook, or well-water system, since more or less sand, leaves, and other foreign materials will collect at the bottom. This foreign matter may be pulled into the fire pump and may lodge under the valves.

Electrical Pumps Should Be Kept Primed

Electrically driven fire pumps, now being so universally adopted, should be kept primed at all times; and the electrical supply should be positive. It is a good practice to provide a dual system of wiring to the fire pump, insuring a duplicate source of power. Check over the fuses on the fire pump daily. Keep an extra set of fuses on hand in the immediate vicinity of the pump so that when badly needed, the fire pump will not be out of commission while waiting for some one to bring fuses from the warehouse. Keep in stock extra diaphragms for wet and dry systems; diaphragms in use may go to pieces when least expected.

If employees happen to be in the vicinity of a fire and can make immediate use of a hand extinguisher, fire loss may be entirely eliminated. For this reason care should be used in choosing the proper hand extinguishers. There are many kinds of fire-extinguishers on the market, of varying degrees of efficiency—the soda and acid type of extinguisher, the carbon-tetrachloride guns, the foam type, and others. Each has its advantages.

The usual practice is to install one 2½-gallon chemical extinguisher and 6 fire pails for each 5,000 square feet of floor area. Where hand hose from a pressure system is provided, the fire pails are sometimes omitted.

Many plants are equipped with hose lines in the interior of the factory. Stand-pipes are run up through the building at frequent intervals. To these pipes are attached, on each floor, short lines of fire hose neatly coiled up in a rack.

The fire-extinguishers, blankets, hose, shovels, axes, and other fire-fighting apparatus should be stationed in definite positions in the factory; and all employees should be familiar with these locations.

Plant Protected from the Paint Hazard

At the East Pittsburgh, Pa., plant of the Westinghouse Electric and Manufacturing Company, the highly volatile and inflammable paint oils are stored in these systematically arranged evaporation-proof tanks.

Fire protection is not complete without an alarm to notify employees when there is a fire. Sprinkler-system alarm valves are so designed that in case of water flow a rotary water-motor gong is set in motion. This is generally located on the exterior of the building; so that those in the immediate vicinity of the plant can be notified.

(To be continued)

* Reprinted from "Factory."

Graettinger, Ia., to Have New Siren.—The council of Graettinger, Ia., has purchased a Federal siren.

Ford City, Pa., Vetoes Plan to Purchase Apparatus—The borough council of Ford City, Pa., vetoed the plan to purchase a new fire truck, bids for which were received in August.

Finklein Appointed Chief of Belleville, Ill.—Walter Finklein has been appointed chief of the fire department at Belleville, Ill. He has been a member of the fire department for ten years and is at present thirty-three years old.

Boston Firemen Instructed in Prone Method—A member of the Boston, Mass., chapter of the American Red Cross has been detailed to the fire department in order to instruct the men in the prone method of resuscitation.

Here Is a New Task for Firemen—When the firemen of Bangor, Me., responded to a supposed fire, they were met by an old lady who informed them that there was no fire, but that a skunk had fallen into her well.

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Remember that BUFFALO equipment is

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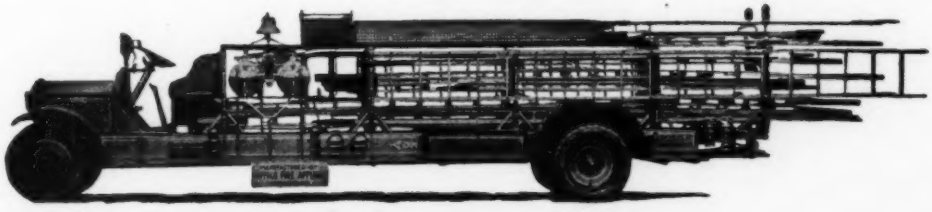

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30 Days Free Trial in Your Own Town

That's our method of proving the Erick Electric Siren to be the fire alarm you need in your town. Place it side by side with the best of all other sirens for 30 days and then be your own judge—decide for yourself whether you want to keep it or not.

"The Erick Electric Siren Shrieks its call of danger to every nook and corner of your town—quick, sure and dependable."

"When fire is discovered, call Central from nearest phone."

The Erick is the only Siren using one big whistle on a powerful 3 and 5 h.p. motor which throws its sound evenly in all directions—louder and more penetratingly than all others. Many special features including special designed hood and screen that protects siren from rain, storm, and nesting birds.

"Central presses button connected to Siren."

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THE smaller community demanding metropolitan fire protection at a figure within its budget is well served by the LaFrance Brockway. A specialized apparatus for a specialized usage.

It combines the light, speedy Brockway chassis and American-LaFrance fire fighting apparatus possessing the same qualities of design and construction that characterize all other American-LaFrance products.

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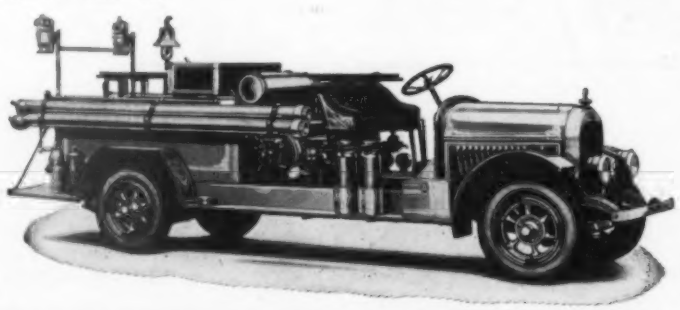

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FIRE DEPARTMENT ACTIVITIES

Ada, O., to Install Siren—A new siren will be soon installed in Ada, Ohio.

Franklin, Pa., Receives Pumper—A Seagrave pumper has been delivered to Franklin, Pa.

Jefferson City, Mo., Has New Station—A new fire station has been erected in Jefferson City, Mo.

Monroe, Mich., Adopts Platoon System—The platoon system of operation has been adopted by the department at Monroe, Mich.

Linden, Ala., to Have Fire Apparatus—Linden, Ala., will soon have a motorized fire apparatus. John Vick is chief of the department.

New Stations for Philadelphia, Pa.—Bids have been invited for the construction of two new fire stations in Philadelphia, Pa.

Northvale, N. J., Purchases Pumper—Northvale, N. J., has purchased a 400-gallon Hahn pumper equipped with an 80-gallon booster tank.

Iowa City Firemen Not to Get Increase—The petition presented by the firemen of Iowa City, Ia., for a pay increase has been ordered shelved by the city council.

Inspection Being Made of Quincy, Mass.—Arthur F. Ballou and George L. Swan, engineers of the National Board of Fire Underwriters are making a survey of fire hazards in Quincy, Mass.

Taunton, Mass., Realizes Need for Apparatus—Mayor McGraw of Taunton, Mass., in his inaugural address stated that one of the needs of the city was new equipment for the fire department.

Fitchburg, Mass., May Have New Fire Alarm—Chief Henry J. Hyatt of Fitchburg, Mass., has asked the city council to authorize the building of a new fire alarm headquarters and a department repair shop.

Fremont, Neb., May Have Fire Inspector—The council of Fremont, Neb., is considering the creation of the office of fire inspector in accordance with the suggestion of Thomas L. Marshall, state fire marshal.

Chief Cody Not to Retire Soon—Chief W. B. Cody of Atlanta, Ga., denied the rumors that he intended to retire before July 1, 1928. The chief intends to round out fifty years of service in the department.

Large Mill Destroyed in Hanson, Mass.—Apparatus from Hanson, Pembroke, Whitman, Plymouth, Burrage and Bryantville fought a fire that destroyed the large mill of a box manufacturer in Hanson, Mass.

Pay of Colorado Springs Men Increased—The firemen of Colorado Springs, Col., will receive a pay increase of $10 a month. The new scale will be: chief, $275 a month; deputy chief, $250, and so on down.

New Rochelle, N. Y., to Pay Officers—A resolution has been introduced in New Rochelle, N. Y., to pay the chief, deputy chief, captains and lieutenants. The salaries are to be fixed by the Board of Estimate.

Bellingham, Wash., Decreases Fire Loss—Although the number of fire runs in Bellingham, Wash., increased over the number of the year previous, the fire loss decreased about $450,000 from the figures of 1925.

New Signal System Adopted in Hastings, N. Y.—A new system of signals has been adopted at Hastings, N. Y., for the twenty-seven fire alarm boxes in the village. The alarm is given by a whistle at one of the factories.

Nebraska Firemen Ask for Insurance—The volunteer firemen of Nebraska have asked for an introduction of a bill in the state legislature that will enable them to collect compensation for death or disability while fighting a fire.

Lexington, Ky., Firemen Want Pay Increase—The firemen of Lexington, Ky., have petitioned for an increase in their pay. Part of the petition stated, "the living expenses in Lexington are so high that we cannot keep out of debt."

Purchase of Apparatus Asked for Newport News—Chief J. B. Gordon of Newport News, Va., in his annual report, asked for the purchase of an 85-foot aerial ladder truck, and a 1,000-gallon pumper to replace an old steamer.

Chief Kellogg of Sioux City, Ill.—Chief George M. Kellogg of Sioux Ctiy, Ia., was operated on for appendicitis on December 8, at the St. Vincent Hospital. He is recuperating rapidly and his associates are looking forward to his return to the department.

Nebraska Schools Need Protection—At the annual convention of the Nebraska Volunteer Firemen's Association in North Platte, it was the expression of the firemen that the schools in Nebraska lack adequate fire protection properly conducted fire drills.

N. Y. Firemen Thrown from Fireboat—While responding to an alarm, Lieut. Connolly, attached to a fireboat in New York city, was thrown from the deck by a sudden turn of the craft and he was in the icy waters for one-half hour before he was finally rescued.

Cumberland, Md., Opens Bungalow Station—The new bungalow fire station constructed in Cumberland, Md., for Engine Company No. 3 has been placed in service. The station is constructed of tapestry brick and it has space to house three pieces of fire apparatus.

Redding, Pa., on Two-Platoon System—The drivers in the Reading, Pa., fire department have been placed on the two platoon basis. There are now two shifts of ten and fourteen hours each alternating weekly. The new plan will cost the city $45,000 a year additional.

Waverly, Ia., Department Re-organized—The fire department in Waverly, Ia., has been re-organized. A part of the city law reads "the City Council shall have full power to dissolve or reorganize the fire companies, to dismiss, remove or re-instate officers and members, make appointments and declare vacancies."

Boston Railway Warns Workers—The Boston, Mass., Elevated Railway has posted the following signs in all car barns, stations and terminals: "In case of fire, however slight, in or about this building, employees are instructed to give an immediate alarm from the nearest fire alarm box and in addition, to use all means at hand toward extinguishing the fire."

New Station Opened in Long Beach, N. Y.—A new fire station, erected at a cost of $25,000 has been officially opened in Long Beach, N. Y. Chief George J. Kuss, a fire commissioner in that city, and a member of the editorial advisory board of FIRE ENGINEERING, has been lauded for his work to bring the department to its present efficient status.

Confesses to Setting 13 Toledo Buildings—On a tour of inspection with members of the arson squad, a 26-year-old boy of Toledo, Ohio, confessed to setting fire to thirteen buildings within four months. He confessed to setting fire to others, the location of which he has forgotten; the police believe that fires in sixty buildings may be attributed to this fire bug.

Detroit Asks for Pay Increase—The Board of Fire Commissioners of Detroit, Mich., in their new budget requested that the city have a new fire boat, two new fire stations, and that the pay of all grades of fire-fighters be increased. The department budget requests totals more than $6,712,000. Included in this plan is a salary increase of $1,500 for Chief Meginnity.

Indiana Marshal Wants Right to Spend Fund—Alfred O. Hogston, state fire marshal of Indiana, wants to be permitted to spend all of the money that comes to his department as the result of the insurance tax. As it is now, the department always shows a balance because of the small number of deputies employed. If the entire fund is used, the fire marshal believes that more deputies can be employed to patrol the state.

Harrison, N. Y., Troubled by Mascot—The firemen of Harrison, N. Y., are having trouble in their search for a mascot that will not turn in false alarms but which will be something unique. They had a black cat but he persisted in walking in front of the fire apparatus. An opossum decided that nothing is so soothing as to swing himself on the fire alarm bell rope, thereby calling out the entire town. The search for a mascot is still on.

Chief Wallace Prefers to Work—Chief George Wallace of Cleveland, Ohio, would rather work than retire at his full pension. Chief Wallace is now past eighty years and has been a member of the fire department for fifty-nine years. The city passed a law that any man who worked in the department for fifty-five years could be pensioned at his full salary, but Chief Wallace would rather work than take the pension of $5,600. He said he wouldn't know what to do with his time otherwise.

WELDED PIPE SEVERELY TESTED IN LARGE OIL REFINERY FIRE

Cast-Iron Fittings Were Ruined by Fire, but None of the Welds Were Damaged—Steel-Welded Pipe Remained Intact

BECAUSE of the highly flammable nature of their hazardous contents, every possible precaution is taken around oil storage tanks to prevent fires. Smoking or carrying open flame lights are positively forbidden. Elaborate piping systems for foam solutions or other fire-fighting compounds are installed; cross connection pipes are installed to draw off oil from the bottom of a burning tank; and an earthen levee is thrown up about each tank to prevent communication of fire from one

Fig. 1. A Section of the Piping that Remained After the Fire

tank to another if one should collapse or boil over. Even static electricity is guarded against by carefully grounding all metal vessel and lines. Notwithstanding these and many other precautions, tanks occasionally burn, often resulting in great property damage. Recently in southern California lightning struck a 55,000-barrel oil storage tank. The resulting fire was communicated to thirteen other 55,000 barrel tanks, and in addition six 1,000,000 barrel underground reservoirs for crude oil had been destroyed with their contents. The entire area was utterly wrecked, and a total loss.

Fig. 1 shows what remained after the fire. A close study of the wreckage was made by engineers representing oil companies, tank builders, pipe and pipe fitting companies, and others. A number of very significant facts were brought to light.

For instance, it was found that the foam system piping had failed under the intense heat. Thus it was impossible to smother several small fires in their early stages, fires which later grew into gigantic proportions. The consensus of opinion was that had this piping system remained intact, several of the tanks would certainly have been saved.

Failure of the foam piping was characteristic of all screw-coupled piping in the fire-swept area, even that buried under ground. Screwed joints pulled out of the fittings and couplings, other couplings and fittings warped or split, allowing the joints to separate. Many fittings collapsed entirely.

In joints made by oxwelding, however, there was no failure whatever. Fig. 2 shows the remains of the pipe connections to a booster pump. Note that all the fitting connections failed, the cast iron ell in the foreground having completely collapsed, yet all the welds in steel pipe remain intact.

In Fig. 4 is shown a 10-in. oil line after the fire. The threaded flange connection at the valve pulled loose but the butt weld a foot away and the oxwelded tee four feet away withstood the fire perfectly.

This fire has served to emphasize again the superiority of the oxwelded joint in such emergencies.

The experience gained by this petroleum company at such great expense is a lesson that should be heeded by not only the superintendents of other petroleum companies but by factory executives and managers everywhere. Don't take chances with piping installed for fire fighting.—*Oxy-Acetyline Tips*

Fireman Volunteers for Blood Transfusion—Bernard V. Gilooly, operator of the fire alarm system at Somerville, Mass., volunteered twice for a blood transfusion in an attempt to save the life of Clyde McArdle, well known radio entertainer.

New Rules of the New York Fire Department

(*Continued from page* 123)

a fireman with instructions to prevent the disturbance of anything connected therewith. Firemen receiving this assignment shall refrain from any discussion of the fire, and shall inform the Fire Marshal, upon arrival, of all information or instructions received.

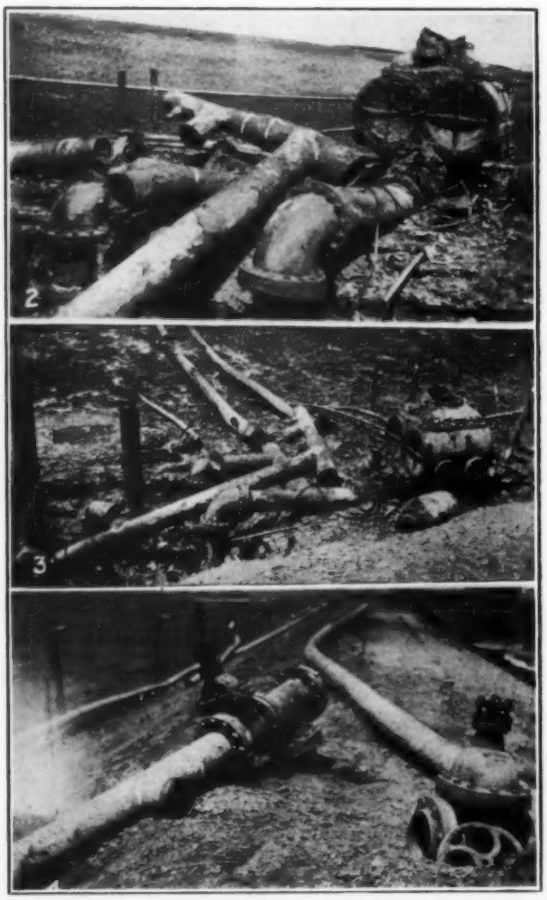
DANGER SIGNALS

SEC. 196. Danger signals for warning engineers of elevated or other railroad trains are carried on each ladder truck, and consist of two (2) red flags to be used for day time and two (2) globe hand lanterns with red glass for night time.

In case of fire in a building located on any street or avenue which is occupied by the elevated or other railroad tracks, and it is deemed necessary by the officer in command of the fire not to allow the trains to pass, either for the purpose of the force working from the tracks or because it would be dangerous for the trains, a danger signal shall be displayed on each track at a distance of not less than one hundred (100) yards from the fire, and immediate notice shall be sent to the persons in charge of the first station in each direction that the electric current must be cut off and that the trains must not pass until, in the judgment of the officer in command, it is safe for them to do so, when the danger signals shall be removed.

SEC. 197. The care and discipline exercised in its own quarters shall govern a company while located in other quarters, and the same routine of house duty shall be followed. House-watch duty shall be performed, the Company Journal shall be kept in the usual manner, and the house heater and engine heater properly cared for.

SEC. 198. Officers in charge of platoons shall conduct an



Views of the Damage Done to the Piping

Fig. 2. The remains of the pipe connections to the booster pump—the cast iron ell in the foreground failed completely. 3. The appearance of some of the damaged piping after the oil fire. 4. The threaded 10-inch flange connection at the valve pulled away.

Some Straight Facts

For Cities, Towns and Large Industrial Plants

SIRACODE SIGNAL CORPORATION is the *only* "Scientific" manufacturer of Sirens in America. These are marketed under the trade name "SIRACODE." All other makes are identical to each other, embodying age-old principles of construction long ago discarded by this company. In view of these facts the following exclusive advantages can be enjoyed only in SIRACODE:

1. **Instantaneous Coding types operating in conjunction with any standard box system, or thru our recently perfected WARD System. We do not reverse the current or apply brakes to our instruments in an endeavor to produce code signals. Our experiments have shown both methods inefficient and unsatisfactory.**

2. **Advanced construction (Parabolic principle) creating greater air volume, hence producing more powerful and penetrating tones, with far greater range than possible with the old types.**

3. **Complete control of sound waves which can be *projected in any desired direction* or evenly spread over a given area.**

4. **On the smaller apparatus types, specially constructed motors so powerful yet consuming so little amperage that drain on batteries is eliminated, making it unnecessary and inadvisable to install any types which require the disfiguring, rebuilding or substitution of parts in your cars or apparatus.**

5. **In large congested cities it is impossible to rely solely on any siren *attached to the apparatus* to clear traffic. This must be done *before* the apparatus arrives. We have recently perfected an instrument especially for this purpose which can readily be attached to street boxes, traffic signals or poles. These instruments function automatically when box is pulled, or thru central station, completely clearing the path the apparatus is to take.**

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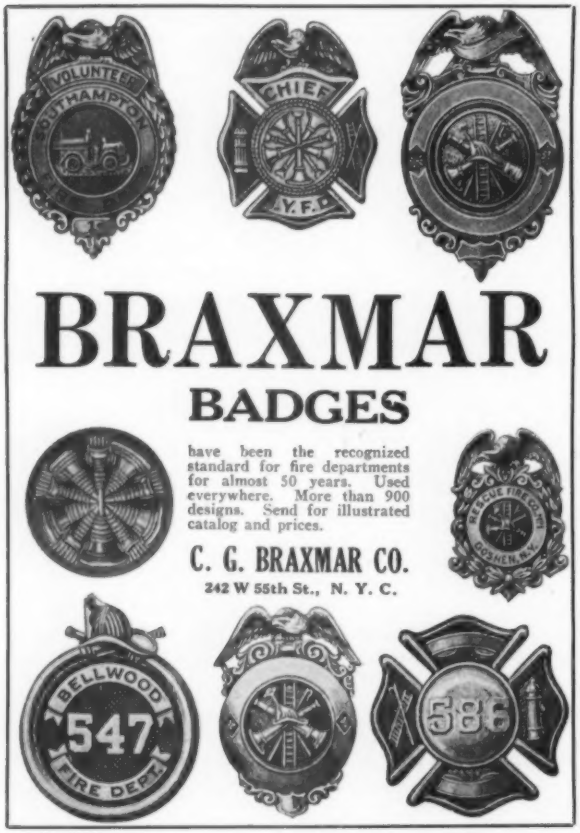

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instruction period of one hour on the day each platoon performs a 24-hour tour of duty, for the purpose of familiarizing members with the rules and regulations, telegraph signals, and the evolutions taught at the Fire College.

All members shall be thoroughly drilled in the handling and use of all tools, appliances and devices.

In addition to this period Deputy Chiefs and Chiefs of Battalion shall arrange and carry out the schedule of instruction in the raising, placing and use of aerial and portable ladders, and water towers, for the benefit of all firemen in their commands.

FIREBOATS

SEC. 199. Fireboats shall be operated in accordance with the United States Government Regulations, and all Rules and Regulaiont of this Department applicable thereto.

SEC. 200. Pilots of fireboats shall have absolute control and responsibilty as to the manner of steering to and mooring boats at the point or place designated by officers in command, and shall be subject to charges for recklessness.

SEC. 201. Fireboats shall not leave their berths without a duly licensed pilot at the wheel.

FUEL WAGONS

SEC. 202. Chauffeurs of fuel wagons shall respond to alarms, as assigned.

In addition to the duties imposed by General Order No. 1, 1925, they shall be responsible—for the apparatus when out of quarters; shall report promptly to the officer in command at fires, deliver supplies quickly to apparatus in need, keep an accurate record of all fuel delivered, gather up all unused coal remaining on streets after fires, and return such to depots.

SEC. 203. The ranking officer in command at any fire of importance is authorized, when the fire is under control, to issue a verbal statement, which shall be official, to newspaper men upon their request for such statement. This statement shall briefly summarize what has happened at the fire.

No other member of the uniformed force is authorized to discuss the fire for publication.

SEC. 204. The matter contained in General Order No. 1, 1925, G. O. 29-1925 and amendatory orders have a direct bearing on the operations of this Department at fires. They are contained in current assignment books.

(To be continued)

Three More Sections Added to I. A. F. C.

(*Continued from page* 116)

James Mulcahey, Yonkers, N. Y.; Director, Chief John Kenlon of New York City; Executive Secretary Jay W. Stevens, San Francisco; Chairman of Membership and Publicity Committee, I. H. Case, New York; Fred Shepperd, Editor of the INTERNATIONAL FIRE CHIEF, New York; J. H. Green, Vice Pres., Eureka Fire Hose Mfg. Co.; F. E. Bensen, Mgr. Metropolitan Dist., Eureka Fire Hose Mfg. Co.; H. J. Seagrave, Mine Safety Appliances Co.; H. S. Haskins, Public Relations Council, Fire Equipment Manufacturers' Institute; John Gibson, Chief of Fire Dept., Mt. Vernon and Pres. of the New York State Fire Chiefs' Association; G. E. Bradbrook, Gen. Mgr., C. G. Braxmar Co.; A. R. Brown, Foamite-Childs Corp.

On January 21 the delegation attended the quarterly meeting of the New Jersey Fire Chiefs' Association at Orange in order to secure the co-operation of the New Jersey chiefs towards this plan. Following the talk of Mr. Stevens in which he outlined the aims of the association, a motion was made by F. A. Trowbridge, secretary of the New Jersey group, to affiliate with the I. A. F. C. The motion was carried unanimously.

The Dominion Association of Fire Chiefs plans to bring its full membership into the International Association, as a result of the meeting at Montreal January 21, attended by several of the officers of both organizations.

With Chief James Armstrong as spokesman, the Dominion officers enthusiastically and wholeheartedly endorsed the membership plan and the great fire prevention program promulgated by the International.

While the meeting was arranged by Chief Armstrong, who, as secretary of the Dominion Association and past president of the International, is well-known for his tireless efforts in behalf of both organizations, the visiting chiefs received a royal welcome at Montreal, as guests of Chief Raoul Gauthier and the Police and Fire Chiefs Club made up of fire and police officials in the Montreal district. The program for the day, laid out by Chief Robt. Harrington, secretary of the club, kept the chiefs occupied every minute with both business and entertainment.

A reception by Mayor Martin and a sightseeing trip which included a visit to the scene of the recent theatre disaster, was followed by a luncheon at the Place Viger Hotel, attended by nearly a hundred chiefs and local civic representatives.

The International Association of Fire Chiefs was represented by Chief John M. Evans, New Orleans, second vice-president; Chief Jay W. Stevens, Cal. State Fire Marshal, San Francisco, Executive Secretary; Chief J. J. Mulcahey, Yonkers, N. Y., Recording Secretary; Geo. Cobb, Boston, Traffic Manager, and I. H. Case, FIRE ENGINEERING, New York, Director of Publicity.

Others in attendance included the following:

A. Tessier, Chief, Hull, Que., Pres. Domin. Asso. Fire Chiefs.
Robert Harrington, Chief, McColl Brothers Refineries.
G. M. Brady, Chief, North Bay, Ont.
R. Gauthier, Chief, Montreal, Que.
Col. Ed. Williams, Harbor Fire & Police Chief, Montreal, Canada.
A. Dubeau, Chief, Verdun, Que., and Pres. Pol. & Fire Chiefs' Club.
Chief James Armstrong, Kingston.
D. P. Fitzgibbon, Liquor Police Chief, Montreal, Que.
D. D. Lorraine, Chief of Provincial Detectives, Montreal.
Grove Smith, Dominion Fire Commissioner, Ottawa, Can.
Louie Chatelle, Mayor, Ville La Salle.
H. Cohn, Alderman, Verdun, Que.
J. F. Chevalier, Ex-Chief, Montreal.
J. W. Thomas, President Poster Associaiton, Canada.
E. de Bellefeuille, Alderman, Point Claire, Que.
H. C. Champ, Fire Prevention Dept., Can. National Rys., Montreal.
H. E. McLellan, D. F. P. A. Laboratory, Montreal.
T. Kavanagh, Inspector of Police, Montreal.
George A. Bain, Supt. of Investigation, C. N. Ry., Montreal.
George Baker, Fire and Police Chief, Outremont, Que.
A. Cadieux, Deputy Chief, Investigation Dept., C. P. Ry.
Wm. Wren, Fire and Police Chief, Westmount, Que.
Alex Riddock, Deputy Chief, Westmount, Que.
Harry Hunter, Chief, Montreal West, Que.
W. B. Willis, Deputy Chief, Outremont, Que.
W. Larente, Fire and Police Chief, Ville la Salle, Que.
W. Mansell, Chief, C. P. Ry. Shops, Montreal, Que.
Henri Cyr, Fire and Police Chief, Pointe aux Trembles, Que.
E. St. Aubin, Deputy Chief, Dorval, Que.
J. A. Danis, Fire and Police Chief, Point Claire, Que.
A. Guyon, Fire and Police Chief, St. Jerome, Que.
George Durocher, Police Chief, Lachine, Que.
Arthur Dicaire, Deputy Police Chief, Lachine, Que.
J. D. Boyer, Fire and Police Chief, Dorval, Que.
A. Laforce, Chief, Lachine, Que.
B. P. Harper, Sergeant of Police, Westmount, Que.
C. R. Taylor, Ins. Inspector, Can. Pacific Ry., Montreal.
J. H. McCarthy, Seagrave Agent, Montreal, Que.
George Thomas, Manager, American-LaFrance Fire Eng. Co.

From Montreal, the party went to Detroit upon the invitation of the Fire Commissioner. The visitors were entertained at a luncheon at the Detroit Club and a dinner was given in their honor at the hotel on Saturday evening by Mr. Mendelsohn, chairman of the fire prevention committee of the Chamber of Commerce. At this dinner one hundred members for the association were pledged from the territory about Detroit; Commissioner Clifford raised the pledge to two hundred.

Those present at the Detroit get-together were:

Commissioners Murphy and Clifford; Fire Marshal G. S Goldwater; Chief Edw. H. Meginity; Geo. E. Morley, Gamewell Company; Chairman Mendelsohn, of the Fire Prevention Committee, Detroit Chamber of Commerce; Deputy Chief Rumsey; and the following officials of the Association: Executive Secretary J. W. Stevens; First Vice-President John Evans; Secretary J. J. Mulcahey; Traffic Manager Geo. Cobb.

A meeting was held with a committee in Chicago on Monday, January 24, to organize the Great Lakes District Association. Chief George Boughner of Grand Rapids, Mich., was elected temporary chairman and Chief Frank C. McAuliffe of the Chicago Fire Patrol, temporary secretary. Chief Hugo R. Delfs of Lansing, Mich., was made district chairman of the membership committee.

Leaving Chicago, a stop was made at Kansas City, Mo., on Tuesday and the Missouri Valley District Association of Fire Chiefs was formed. The temporary officers of the new group are Chief Joseph Waidelich of Topeka, Kans., chairman, Chief Olander Lind of Kansas City, Kans., secretary and treasurer, Chief W. H. Paul of Sedailia, Mo., in charge of the local membership committee.

The organization of the various sections will increase the membership of the international association and welds the several districts into one body for the interests of fire prevention and protection.

Chicago Firemen Get Pay Increase—The firemen of Chicago will now receive $2,500 a year, and other ranks were raised accordingly. The new pay for the officers is as follows: Division marshals, $4,500; captains, $3,200; lieutenants, $2,900.

Great Falls, Mont., to Vote on Pay Increase—The people of Great Falls, Mont., will vote in the spring on the plan to place the fire department on an eight hour day. In lieu of an eight hour day, the men want a pay increase of $30 a month and a six-day week.

Ruling Hits Convention Trips

According to a ruling made by Henry F. Long, Massachusetts State Commissioner of Corporations and Taxation, the expenditure of municipal funds for visits of city officials to conventions in other sections of the country or for entertainment of distinguished guests is against the law and city auditors have been instructed not to approve such bills.

Some weeks ago the matter of the legality of municipal payments for expenses of delegates to conventions was brought to the attention of the commissioner who asked the opinion of Attorney General Jay R. Benton, who has since been succeeded by Arthur K. Reading. The attorney general declared that it was not legal.

Commissioner Long then prepared and introduced a bill in the state legislature which would make it legal for cities and towns "to provide proper facilities for public entertainment in connection with the holding of conventions in the city and for paying expenses incidental to such entertainment; to provide for the entertaining of distinguished guests and for procuring representation of the city at conventions held in any part of the United States or Canada for considering questions relating to municipal policy or administration."

The Legislature refused to accept this bill and as a result Commissioner Long has sent letters to all mayors, auditors, and boards of selectmen notifying them that the use of city funds for sending delegates to conventions must cease at once.

This ruling will affect all municipal officials including fire department chiefs, water works superintendents, and school teachers in the Commonwealth of Massachusetts.

HARRY BELKNAP.

Compiling Fire Department Data

The International Association of Fire Fighters, the association which has been doing much to improve the condition of firemen in departments throughout the country, is now compiling data on fire department salaries, requirements for appointment, pension and retirement funds, and other topics of particular interest and value to fire departments in general. The association has mailed to all fire department chiefs information blanks to be filled in.

Secretary George J. Richardson, located at the Association Headquarters, 901 Massachusetts Avenue, N. W., Washington, D. C., asks that these forms be filled out and returned at the earliest moment so that the largest possible representation may appear in the compilation of data which will be printed shortly.

The association is very liberal in supplying data of this sort to fire departments and deserves the co-operation of the chiefs throughout the country.

Mineola, N. Y., Fully Equipped with Stutz Apparatus

Mineola, L. I., N. Y., is protected with three pieces of Stutz apparatus all delivered to the village since 1924. The illustration shows the three tank chemical and hose car that was delivered recently. The two other pieces that have been delivered are a city service truck and a 600-gallon triple combination.

Easton, Pa., to Have New Fire Station—A bond issue was passed in Easton, Pa., for the construction of a new fire station.

Additions Voted for Jacksonville, Fla.—Chief McMillan, although he did not receive all of the additions that he asked from the Jacksonville, Fla., council, will have his department improved by the erection of two new fire stations, each to house a 750-gallon American-LaFrance pumper. A 1,000-gallon pumper will be placed in service at headquarters; sixteen men will be added and forty additional fire alarm boxes erected. New equipment has been ordered for the men in service.

Newly Elected Chiefs and Other Officers

The following list compiled from press reports contains the names of newly elected chiefs and officers as well as those re-elected:

CAMPBELLSPORT, WIS.—A. J. Sukawaty, chief
TOLEDO, OHIO—F. C. Smith, chief
TRIPP, S. D.—Geo. Wiederrich, chief
LOGAN, IA.—C. A. Stern, pres.
GARNER, IA.—M. N. Zieger, chief
WAVERLY, IA.—F. A. Lavell, chief
REDWOOD FALLS, MINN.—J. M. Corbett, chief
DuBOIS, PA.—L. K. Johnson, chief
SOMERVILLE, N. J.—Joseph Allgair, chief
WESTMONT, N. J.—Edward Martin, chief
SPOONER, WIS.—Ralph Jones, chief
SPRING GROVE, MINN.—A. Roverud, chief (re-elected)
NEW UNDERWOOD, S. D.—S. Trople, chief (re-elected)
HAVRE de GRACE, MD.—L. M. Moore, pres., W. Coakley, chief (re-elected)
WEIRTON, W. VA.—M. Jones, pres.; J. Ferrari, chief
MT. SAVAGE, MD.—John Neder, pres., L. A. Fannon, chief
PARNASSUS, PA.—Frank Glass, chief
ORRVILLE, OHIO—John Odenkirk, chief
ABINGDON, MD.—L. W. Tucker, chief
BELAIR, MD.—W. Wylie Hopkins, pres.; Frank Hiser, chief
KALAMA, WASH.—Gottfred Forslund, chief
DENTON, MD.—C. S. Kaufaman, pres.
GLENVIEW, ILL.—Earl Lynn, pres., Henry Mueller, chief
LADD, ILL.—John Evans, chief
POMPTON LAKES, N. J.—Ernest Guenter, chief
GENOA, NEB.—Wm. Bruce, chief, John Eller, pres.
STERLING, COLO.—J. E. Koenig, chief
ORISKANY, N. Y.—Wm. Conklin, pres., James Phillips, chief (re-elected)
CARROLLTON, MO.—L. B. Weaver;
BRYAN, TEX.—I. Warren;
HOOPESTON, ILL.—Ralph Parks;
MCKINNEY, TEX.—J. S. McKinney;
FOREST JUNCTION, WIS.—Albert A. Jansch;
BENTONVILLE, ARK.—J. D. Fields;
MEYERSDALE, PENN.—Fred P. Hare;
NORTH ARLINGTON (MAIL ARLINGTON) N. J.—Edward Selleck.

Bookings of "The Fire Brigade"

(*Continued from page* 126)

CITY	THEATRE	DATE
New Jersey		
Camden	Lyric	March 7-9
New York		
Batavia	Family	Feb. 27-March 5
Jamestown	Wintergarden	Feb. 13-19
North Carolina		
Wilmington	Royal	March 3-5
Winston Salem	Colonial	March 28-31
Ohio		
Ashtabula	Palace	Feb. 14-16
Akron	Allen	Feb. 5
Crestline	Hippodrome	Feb. 27-March 1
Columbus	Grand	Week of March 5
Columbus	Empress	April 18-29
Coshockton	Sixth St.	March 11-12
Dayton	Victory	Feb. 6-12
Mt. Vernon	Vine	Feb. 18-19
Oklahoma		
Pawhuska	Constantine	Feb. 13-14
Sand Springs	Liberty	
Pennsylvania		
Hamburg	Strand	March 8-9
Harrisburg	Loews Regent	Feb. 21 changed from Feb. 28
Reading	Loews Colonial	Feb. 21 changed from Feb. 28
South Carolina		
Charleston	Pastime Am's'm't C	March 17-19
Virginia		
Lynchburg	Auditorium	Feb. 23-25 changed from Feb. 2
Washington		
Anacortes	Empire	April 24-27
Snohomish	Browns	March 3 and 5
Spokane	Liberty	Feb. 26
West Virginia		
Beckley	Palace	April 21-23
Hinton	Masonic	April 11-12
Mt. Hope	Princess	March 10-11
Wisconsin		
Menasha	Orpheum	April 6-7
Neenah	Neenah	April 4-5

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PROPOSED IMPROVEMENTS

Wilkes Barre, Luzerne Co., Pa.—City has purchased an American - LaFrance 65 - foot aerial truck for Fire Station No. 4.

Grantley (Mail York) York Co., Pa.—Grantley Fire Co. purchased a Buffalo Fire Appliance triple combination car. W. C. Throne, Pres.

Tarentum, Allegheny Co., Pa.—Sites for fire stations in three wards have been decided upon. Thos. Mosley is chairman of Property and Ordinance Committee.

Lexington, Fayette Co., Ky.—W. Jesse, Chief of Fire Dept., recommended in his annual report the erection of a new central fire station at a point outside of the congested district, together with ample quarters for a repair shop.

Orange, Essex Co., N. J.—James J. McMillan Chief of Fire Dept. recommended the purchase of an aerial fire truck in his annual report.

Maybrook, Orange Co., N. Y.—Committee appointed to get data on the cost of constructing a new fire station. Charles Wester was elected chief of the fire dept.

Millersburg, Holmes Co., Pa.—Rubber outfits are to be purchased for the Millersburg Fire Co.

Belmont, Lafayette Co., Wis.—City has voted to issue bonds for $3,500 to buy a fire engine for the fire department.

Watervliet, Albany Co., N. Y.—Funds have been secured for the purchase of new equipment for the fire department. Wm. B. Riley, Director of Finance.

Picher, Ottawa Co., Okla.—Replacement of the present fire apparatus with one of the latest type is being considered. Purchase recommended by Fire Chief Grover H. Todd.

Daly City, San Mateo Co., Calif.—Board of Fire Commissioners planning for the construction of a new fire station and the purchase of apparatus to furnish it with.

Garden Grove, Orange Co., Calif.—A fire district was created and equipment is to be purchased.

Clearwater, Pinellas Co., Fla.—New fire station to be erected on corner of No. Garden Ave. and Hendricks St. at $60,000.

Shubert, Richardson Co., Nebr.—Volunteer fire department organized with I. W. Wright as president and Tom Hillyard as chief.

Riverbank, Stanislaus Co., Calif.—Volunteer fire department raising funds for the purchase of equipment.

Alton, Madison Co., Ill.—Fire Department Committee considering the installation of a new fire alarm system. A $4,000 balance is left over from the recent bond issue.

Edison Park (Mail Chicago) Cook Co., Ill.—John K. Kolf, Pres., N. C. Edison Park Improvement Club working to secure fire alarm boxes for the community east of Osceola Ave.

Minneapolis, Hennepin Co., Minn.—A request for a $185,000 bond issue to acquire a site and construct a three-story central fire station to serve the loop district was introduced to the City Council. Charles W. Ringer, Chief of Fire Dept.

Rumson, Monmouth Co., N. J.—An ordinance for an American-LaFrance fire truck to cost not more than $13,000 was introduced and passed recently at a meeting of the Board of Commissioners.

Avis, Clinton Co., Penn.—Committee appointed by Avis Fire Company to purchase a pumper. The company also to investigate the installation of an alarm system. Paul Seyler, Chief.

Ventura, Ventura Co., Cal.—H. A. Johnson, Chief of Fire Dept. recommends a bond issue for the purchase of additional fire alarm equipment, in his annual report.

Davis, Stephenson Co., Ill.—An election will be held Feb. 3 to vote on a $5,000 bond issue for fire equipment for the fire department here.

Savanna, Carroll Co., Ill.—City Attorney has been requested to prepare an ordinance calling an election to vote on a $11,000 bond issue for apparatus and equipment for the fire department.

Fond Du Lac, Wis.—City Commission favors the purchase of two additional pumpers for the fire department.

Cranston (Mail Providence) Providence Co., R. I.—Plans being made for the erection of a fire station in the first ward.

Hartford, Hartford Co., Conn.—New fire station to be erected in the northwest part of the city.

Chicago, Cook Co., Ill.—Two new fire stations to be erected in the northwest territory this spring; one in Norwood Park and the other in Edison Park.

Stockton, Jo Daviess Co., Ill.—Stockton and the adjoining territory have organized a community fire department and funds are being raised for purchase of equipment.

Sioux City, Woodbury Co., Iowa—City Council considering the building of a new fire station in Riverside.

Waconia, Carver Co., Minn.—Considering the purchase of apparatus to give farmers community fire protection.

Kansas City, Jackson Co., Mo.—A service truck was recently purchased from the General Motors Truck Co.

Kansas City, Jackson Co., Mo.—Citizens' Fire Waste Council recommended the purchase of fire apparatus to replace the old worn out Velle pieces now in use.

Elwood, Atlantic Co., N. J.—Plans being made for the construction of a new fire house for the Elwood Fire Company.

Great Neck, Nassau Co., N. Y.—The Alert Fire Dept. is planning the erection of a new building to replace the present fire station.

Mount Morris, Livingston Co., N. Y.—At meeting to be held next month of the Mount Morris Fire Dept., plans are to be discussed for the purchase of new equipment for the department. Wm. H. deCamp, Mayor.

Essex Junction, Chittendon Co., Vt.—Fire Department started movement for the securing of funds for the purchase of new equipment. W. W. Putnam, Chief.

Blockton, Taylor Co., Iowa—A fire department was organized here recently with S. C. Nye as chief.

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CONVENTION DATES

June 21-23—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 38th Annual Convention, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Fire Department, Poughkeepsie.

June 21-23, 1927—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, Congress Hotel, Portland, Me., Secretary, Chief John W. O'Hearn, Watertown, Mass. For reservations address Geo. F. Cobb, Traffic Manager, 774 Albany Street, Boston, Mass.

Aug. 9–12—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 55th Annual Convention, Portland, Ore. Secretary, Chief J. J. Mulcahey, Yonkers, N. Y.; Executive Sec., State Fire Marshal Jay W. Stevens, Merchants' Exchange Bldg., San Francisco, Cal; Chairman, Exhibit Committee, Chief Albert Herring, Murphysboro, Ill.

Aug. 14-16, 1927—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual convention, Elmira, N. Y. Frank A. Emden, secretary-treasurer, 1200 Lenox Ave., Utica, N. Y.

Aug. 24-26—VIRGINIA STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and tournament, Alexandria, Va. Secretary, E. K. Landis, Pulaski, Va.

Sept. 1927—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Sept. 7-8, 1927—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8, 1927—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 12-14—ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual Convention, Russellville, Ark. Secretary, H. D. Compton, Little Rock, Ark.

Sept. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 40th Annual Convention, Jacksonville, Ill. Secretary, Roy A. Alsip, Champaign, Ill.

Oct. 4–6—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION, Annual Convention, Shamokin, Pa. Secretary, Charles F. Clark, 411 Bellevue Ave., Wayne, Pa.

Illinois Firemen Meet in Quincy, Ill.

The Illinois Firemen's Association held its thirty-ninth annual convention in Quincy, Ill., during January 11-13. President Pearl Smith of Madison presided.

An interesting address was made by Hon. A. Otis Arnold, of the State Legislature, on the "Firemen's Service to a Community. He said:

"The community owes you a living wage and I know in some places they do not get it, and I know in other places you have to fight your way to get the remuneration to which you are entitled. Every community owes it to its firemen, especially in those cities large enough where regular fire departments are maintained, and where men give their time completely to that work.

"The community owes it to you to pay you enough, not only to live but to support a family and raise that family in keeping with the standards that prevail in that community. The community owes you a clean town in which to live, and the community has the final say in those matters. It owes you an opportunity to earn promotion. In other words, I believe that every city that is large enough to maintain a fire department owes it to the men in that department that they should be under Civil Service so that they will not be switched in and out at the whims of the passing officers."

M. M. Brandon, an engineer of the Underwriters' Laboratories in Chicago, spoke on the "Underwriters' Laboratories' Service to Firemen."

Several motions were passed in reference to state legislation that would benefit the firemen. One was to instruct the state legislature to consider a bill that would benefit the volunteer firemen who were disabled or who died as the result of fighting a fire. Another, to amend the present pension law so as to increase the amount of relief for the widow and children of a fireman.

Harry K. Rogers, better known as the fire clown, gave a demonstration of his work. Addresses were made by O. C. Forsman of Flora, Ill., in reference to the Egyptian Fire Fighters' Association; John G. Gamber, state fire marshal, spoke on "Home Rule in Fire Prevention;" James S. Mahan, president of the Western section of the International Association of Electrical Inspectors, spoke on "Fire Prevention in Heating and Power Plants;" Charles W. Parsons, engineer, Illinois Inspection Bureau, gave a talk on "Illinois Firemen and Their State." On the last day of the session, M. J. Ford spoke on "Dry Cleaning—Then and Now."

The new officers are: Thomas J. Ruddy, Joliet, president; Albert Hasse, Peru, first vice-president; Roy M. Alsip, Champaign, secretary; Fred E. Danner, Mt. Pulaski, treasurer; Elmer W. Weidler, Mt. Olive, historian. The next convention of the association will be held in Jacksonville, Ill., September 13-15. It was voted to hold all future conventions in September instead of the month of January.

Ask for Bill for Firemen's Relief—The Northern Minnesota Firemen's Association endorsed the bill before the legislature to levy a one-tenth mill tax for the firemen's relief associations of the state. The present law permits the tax to be levied but does not make the action compulsory.

Winnipeg, Can., Fatal Theatre Fire

(*Continued from page* 131)

beam fell on his back. A police ambulance removed him to the hospital although luckily he escaped serious injury.

More than ninety firemen fought the fire, assisted by three pumpers, three hose wagons, three motor aerials and one hook and ladder truck. The apparatus was both of the American-La-France and Seagrave make. Twelve hydrants were available and there was ample water pressure. On the high pressure mains there was a pressure of 235 pounds, and a pressure of seventy-five pounds was maintained on the low pressure mains. Almost six thousand feet of hose was used for the fourteen streams that were played on the building. In addition to the hose streams, there was one turret pipe and a portable tower on a ladder.

The firemen were greatly hampered by the high winds that prevailed at that time, and by the low temperature weather.

The loss on the building is estimated at $65,000 while that of the contents, which consisted of scenery and furnishings, $10,000.

All of the city firemen, injured, or killed, come under the provisions of the Workmen's Compensation Act. Under the terms of this law the widow receives $30 a month, $12 a month for the eldest child, $9 for the next and so on down. Compensation is paid for the children until they reach eighteen years of age. While incapacitated, the injured firemen will receive two-thirds of their average pay during the term that they are unable to be on duty, in addition to the medical attention required.

In commenting upon the fire Mayor Webb said, "I am sure that every heart in Winnipeg beats in sympathy with the bereaved families of our poor firemen who gave their lives so gallantly in the course of their duty. Our sympathies, I am sure, are also extended to those who were injured in the fire, and who, I hope, will soon be able to resume their duty."

A fund was collected to relieve some of the suffering in the homes made sad by the death of a fireman. A commission was appointed to investigate the cause of the fire.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending January 28

EASTMAN, GA.—First Baptist Church destroyed..... 25
WILLIAMSTOWN, MASS.—St. Anthony Hall, Williams College.. 25
SAN FRANCISCO, CALIF.—Business bldgs. Van Ness Ave..... 60
MASON CITY, IA.—Central Trust Bldg. destroyed..... 250
MEDINA, N. Y.—Garage of Beers Chevrolet Co..... 30
CORSICANA, TEX.—Penland Drug Store damaged..... 30
BIRMINGHAM, ALA.—Purity Ice Company damaged..... 25
MACHIAS, ME.—Business establishments damaged..... 175
LONDON, ONT.—People's Loan & Savings Co. bldg..... 50
CHICAGO, ILL.—Hebard storage warehouse..... 80
CLIFTON, S. I., N. Y.—Freighter "Karroo" and cargo..... 675
GRATZ, PA.—High school bldg. destroyed..... 40
ROARING RIVER, N. C.—Plant of Roaring River Furniture Co. 210
CYRENE, GA.—Sawmill of Hodges & Battle..... 40
EAST JAFFREY, N. H.—Riverside Block damaged..... 25
HOOPESTON, ILL.—United Presbyterian Church..... 45
WELLSBURG, W. VA.—Tipple of Virginia & Kentucky Coal Co. 25
HAMMONTON, PA.—Bank Bros. bldg. damaged..... 25
SIOUX CITY, IA.—Plant of Iowa Meat Company..... 25
SAVANNAH, GA.—Residence of Judge W. F. Cooper..... 25
JEFFERSON CITY, MO.—Bldg. of Missouri State Penitentiary. 25
KNOXVILLE, TENN.—Spears Webster Apartments..... 50
DRAPER, WISC.—Fair Store destroyed..... 25
HAGERSTOWN, MD.—Wood Auto Service Bldg..... 30
PERU, IND.—Factory of Blazek & Company..... 80
PADUCAH, KY.—Building occupied by Mode Shop..... 25
WILMINGTON, DEL.—Plant of Fiber Tube & Ins. Co..... 70
JACKSONVILLE, FLA.—Warehouses of Peninsula Barrel Co. 200
HAMMOND, LA.—Standard Box & Veneer Plant..... 170
DENTON, TEX.—Business bldgs. owned by Mrs. S. M. Cunningham..... 35
SPRINGFIELD, ILL.—Plant of Geo. B. Smith Co..... 25
NEW WILMINGTON, PA.—Main bldg. of Westminster College 225
SASKATOON, SASK.—Main Street business establishments... 80
SCARBO, W. VA.—Garage of J. A. Wren..... 125
WHITE ROCK, B. C.—Post office and several stores..... 25
CHENEY, NEBR.—Business section damaged..... 25
MONTREAL, QUE.—Shops of Darling Brothers..... 65
LOGAN, W. VA.—Store of Nick Rooney damaged..... 25
YORK HARBOR, ME.—Store of W. L. Hawkes..... 40
CORNING, ARK.—Bldgs. occupied by Corning Motor Co..... 50
PARIS, IND.—Mayo Junior High School destroyed..... 125
PEARL BEACH, MICH.—Perry & Co. boat works..... 40
SPRINGFIELD, MO.—Shops of St. Louis-San Francisco R. R... 200
BUTTE, MONT.—Warehouse of Henningsen Co..... 25
SNOW HILL, N. C.—Exum & Co. warehouse..... 40
PASSAIC, N. J.—Property at 278 Monroe St..... 40
LYNDHURST, N. J.—Benson Bldg. and adj. property..... 80
NEWPORT BEACH, CALIF.—Plant of Orange Co. Refining Co. 60
JACKSONVILLE, FLA.—Property of Southeastern Oil Co... 75
LOYALTON, CALIF.—Mill of Clover Valley Lumber Co..... 125
QUEBEC, QUE.—Steamer St. Lawrence badly damaged..... 200
LAWRENCE, MASS.—Victoria Theatre damaged..... 80
MONTICELLO, N. Y.—Business bldg. owned by I. Cohen..... 80
PORT RICHARD, S. I., N. Y.—Tug boats of Staten Island Shipping Co..... 80
FALL RIVER, MASS.—Empire Theatre damaged..... 80
AKRON, OHIO—Roseland Dance Hall, Riverview Park..... 70
MILWAUKEE, WISC.—Mitchell Bros. Store..... 60
LINCOLN, NEBR.—Richmond Candy Factory..... 70
CASTLE SHANNON, PA.—Several business establishments.. 50
CHICAGO, ILL.—Swisher Photo Studios..... 40
PIEDMONT, CALIF.—Claremont Country Club destroyed.... 400
ROCHESTER, N. Y.—Upton Cold Storage Plant..... 75

Week Ending February 4

ST. LOUIS, MO.—Temple building damaged..... 25
LEXINGTON, N. C.—Machinery bldg. Lexington Chair Co.. 35
STAMFORD, CONN.—Jones' Drug Store damaged..... 60
MUNCIE, IND.—Garage of Shaffer Sales Company..... 25
LOWELL, MASS.—Three stores in Middlesex Street..... 40
JACKSONVILLE, FLA.—Property of Jacksonville Rosin Co.. 25
CEDAR RAPIDS, IA.—Plant of Quaker Oats Co., damaged.... 170
WINCHENDON, MASS.—Plant of Wm. Brown & Son..... 25
NASHUA, N. H.—Municipal workshop damaged..... 25
COLUMBIA, MISS.—Home of E. A. Wilks, Broad St..... 25
WALLINGFORD, PA.—Dwelling of J. W. Mercer..... 125
CLEVELAND, O.—National Fibre Co. plant..... 25
RICHMOND, VA.—Portion of F. K. Woodson's candy plant.. 25
SIKESTON, MO.—Garage & warehouse, Stubbs Motor Co.... 25
ORLANDO, FLA.—Jurnigan Packing House..... 40
SALT LAKE CITY, UTAH—Residences in South Seventh St. E. 35
LEONARD, COLO.—Residences and stores destroyed..... 25
WOONSOCKET, R. I.—Harris building..... 80
BELLINGHAM, WASH.—Bldg. of Schuman Steel & Mch. Co.. 70
SPRINGFIELD, ILL.—Plant of Geo. B. Smith Chemical Works. 175
ST. MALO, QUE.—Verdon Candy Factory destroyed..... 25
WHEELING, W. VA.—J. C. Moore Bldg. destroyed..... 80
TORRENT, KY.—El Park Hotel & L. & N. R. R. station..... 50
LAKE BOON, MASS.—Several cottages destroyed..... 30
CHICAGO, ILL.—Building at 3301 W. Adams St..... 40
WHEELING, W. VA.—Lyric Theatre damaged..... 100
SCRANTON, PA.—Clarke Bros. Department Store..... 400
ROCK HILL, S. C.—Several business buildings destroyed.... 95
NEW BRITAIN, CONN.—Convent of St. Mary's R. C. Church.. 25
FORT COLLINS, COLO.—Colorado Agricultural College Bldg.. 170
BREWER, ME.—Buildings of Smith's Planing Mill..... 75
CATOOSA, OKLA.—Oil cars—Frisco Railroad..... 80
LONDON, ONT.—Crystal Palace, Western Fair Grounds..... 50
LYNN, MASS.—Apartment, 4 Brightwood Terrace..... 25
RICHMOND, VA.—Allison Building damaged..... 25
TAMPA, FLA.—Warehouses of Simmons Bed Company..... 65
NORMAN PARK, GA.—Boys' dormitory, Norman Institute.... 30
CHICAGO, ILL.—Home of Roland Hastings, 220 Dale Ave.... 80
CHARLOTTE HALL, MD.—Bldg. Charlotte Hall Military Acad. 40
MORRISTOWN, N. J.—Residence of Mrs. H. Coghill..... 35
SYRACUSE, N. Y.—Plant of Syracuse Plating Co. damaged.... 80
CHICAGO, ILL.—Illinois Plating Co., 125 S. Clinton St..... 40
GARY, IND.—Columbia, Servia and Albany Hotels..... 80
ROLLINSVILLE, COLO.—Rollinsville Hotel and adj. property. 25
CHARLOTTE, N. C.—Ideal Shoe Store..... 25
GLENDIVE, MONT.—Warehouse of Glendive Transfer Co.... 45
SIDNEY, N. Y.—Three buildings destroyed..... 50
LEAMINGTON, ONT.—Hanson Hotel damaged..... 35
AVON PARK, FLA.—Avon Park Hotel destroyed..... 80
MASON CITY, IA.—Prussian Clothing Store, Barrett Grocery.. 40
WOBURN, MASS.—Paterson Patent Leather Co. adj. plants.. 200
EAST ORANGE, N. J.—Yards of Passaic-Bergen Lumber Co.. 50
WEST FORT LEE, N. J.—Plant of Cello Film Co..... 120
BUFFALO, N. Y.—G. J. Meyer Malting Co. plant..... 65
BATAVIA, ILL.—Home of Dr. F. H. Daniels..... 25
CASTANA, IA.—Pennington-Scott Bldg. destroyed..... 25
NORTHFIELD, VT.—Machine Shop of Philips & Slack Co.... 35
CAMDEN, N. J.—Warehouse of Armstrong & Latta Co..... 80
KAOLIN, PA.—Barn on farm of Edgar Slaughter..... 25
DANVILLE, KY.—Business Bldgs., including Stout Theatre.. 50
NEW BRUNSWICK, N. J.—The Brunswick Shop, destroyed... 590
NORTH ARLINGTON, N. J.—Dwellings, Ridge Road..... 50
GARRETT, IND.—Boston Store and adj. property..... 60
BLOOMINGTON, ILL.—Manchester Grain elevator..... 25
BORGER, TEXAS.—Four tanks, Panhandle oil field..... 40
WATERBURY, CONN.—Moriarty Bldg., E. Main St..... 170
LINCOLN, NEBR.—Troxell Furniture Store, adj. property.... 40
QUINCY, ILL.—Portion of Economy Enameling Plant..... 40
BAZINE, KAN.—Several business establishments..... 25
MENOMINEE, MICH.—Business building damaged..... 30
MOORE, OKLA.—Moore Consolidated School Bldg..... 50
NASHVILLE, TENN.—Charles P. Ellis' store..... 25
WARWOOD, W. VA.—Moore business and apartment bldg.... 60

Avis, Pa., to Purchase Pumper—At a meeting of the fire department of Avis, Pa., it was decided to purchase a pumper.

Biloxi, Miss., Purchases Pumper—A 1,000-gallon Seagrave pumper was purchased for Biloxi, Miss.

Reading Firemen House Ambulance—A new ambulance has been housed by members of a fire company in Reading, Pa.

Chief Fowler of Gardner, Mass,, to Retire—Chief Albert A. Fowler of Gardner, Mass., has asked to be retired on half pay. He has not been in good health for some time.

Kerry, Chief of St. Albans, Vt.—Thomas Kerry has been appointed chief of the fire department at St. Albans, Vt. He was formerly a member of the Springfield, Mass., department.

Perfect in every detail
is the verdict of those using the

DONTFEAR

Smoke and Fume Respirator

The canister contains a very special filtering medium which stood severe tests of the Bureau of Mines; the absorbent medium is composed of materials which were used in the smoke masks of the U. S. Government during the war, and these are so arranged as to give their combined effectiveness. Users of "DONTFEAR" Respirator get the best protection possible against smoke and smoke gases.

Send for Descriptive Catalogue

Price $5. With Airtight Goggles and 5 Extra Canisters $7.50

Gibbs-Wahlert Mask Co.

388 Jay St., Opp. Fire H'q'trs Brooklyn, N. Y.

"Pirsch" Builds Complete Line of Motor Apparatus

Let Us Submit Bids on Your New Apparatus

Catalogue No. 16 Now Ready! Send for it.

PETER PIRSCH & SONS CO.

Since 1857

Kenosha, Wisc.

MORSE

FIRE BOAT EQUIPMENT

Invincible and Callahan Nozzles

Fire Department Supplies

are in use throughout the country and giving unsurpassed service.

Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

You will find that it pays.

Write for Catalog

Andrew J. Morse & Son, Inc.

221 High St. Established 1837 Boston, Mass.

HAHN

Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

Hahn Motor Truck Co.,

Hamburg, Pa.

LARKIN Shut-off Nozzles

Over 2000 Fire Departments

have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

Write for catalog

The LARKIN Mfg. Co.

Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

"Midland's Greatest Son"

Send for your copy today

YOU will be intensely interested in this booklet. It contains a specific message every citizen — especially every city official should read. We have a limited supply of these booklets. If you will send us your name and address, we will be glad to send you a copy.

Forty years of building Powerful High Grade Fire Apparatus. ¶ 6,000 Boyer sealed Cartridge Chemical Tanks in operation and never a failure.

Boyer Fire Apparatus Co.

Logansport Indiana

HALE PUMPS

IF you have a job which is uncomfortably close, try a Hale pump. Hale Dreadnaught Pump efficiency is enough higher than other pumps to create leeway where no leeway exists.

HALE FIRE PUMP CO.

Conshohocken, Pa.

Sanford Fire Apparatus

All Types and Sizes

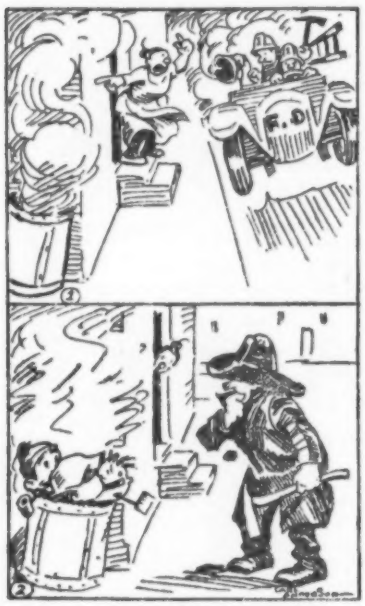
Fire Apparatus Division

SANFORD MOTOR TRUCK CO.

Syracuse, N. Y.

Builders of Quality Products for 15 Years

FALSE ALARMS



The End of a Perfect Day—*N. Y. Daily News.*

IT'S ALL IN THE VIEWPOINT

A colored member of a volunteer fire company, in fighting a fire in one of the homes of the village, fell down the stairs and was taken to the nearby hospital, very much shaken up.

Several days later one of his friends hearing of the accident, decided to pay him a friendly visit, and so attired in his best, he called at the hospital.

He said to the nurse in the hall, "Ah called to see how mah frien' Joe Brown was gettin' long."

"Why he's getting along fine," said the nurse. "He is convalescing now."

"Oh, that's all right," replied the negro, "don't trouble you' self. Ah'll jest sit down and wait till he's through."

A GOOD FIT

As a result of the change in the uniform of the members of the New York fire department, one of the officers had a stock of starched wing collars on hand that were called by some, "gates-ajar collars."

Before leaving for work one morning, the officer instructed his wife to see if she could find some one who could use the collars. She thought of her colored laundress and phoned her that if the collars would fit her husband that she could have them the next time that she called.

"Jes, a minute ma'am," replied the laundress, "while ah asks mah man if dev'll fit him."

Turning aside she shouted, "Heah, what size collar does you weah?"

"Lemme see, ah weahs thut-tee 'n a half, fo'teen, fo'teen an' a half, fifteen, fifteen an'—"

Returning to the phone, the laundress said, "That's all right, ma'am, they'll fit him."

MAYBE HE DOESN'T

In one of the suburban fire companies the men had a community kitchen. That is, one was elected to prepare the meals for the men and the expense incurred for the week was divided among the men of the company. Accordingly a budget was kept of the expenses.

Some of the entries were butcher $4.10.; groceries, $8.42; L. O. K. $10.02; groceries, $2.79; L. O. K. $1.42.

"That's all right," said one of the men who was auditing the accounts for the week, "but what is this L. O. K., that you have entered here?"

The company chef replied, "It means just what it says—'Lord only knows'."

MERELY DETAILS

One of the first duties of the new fire department officer in an outlying company was to make a report of an accident that befell Fireman Murphy. He was puzzled about how to make out the report so he wrote to the chief of the department as follows:

"I am sending in the accident report on Fireman Murphy's foot when he got struck on the roof with an axe while opening up the roof for ventilating. Now under 'remarks' whose remarks do you want, mine or do you want Murphy's?"

A CASE OF TOO MUCH WATER

"The water tank is on fire," shouted the good people of Monticello, N. Y. Some one called the fire chief on the phone and told him of the blaze.

"Gwan," said the chief, who thought that some one had imbibed too freely of the cup that cheered, "we're too busy now putting out the reservoir.

But the person at the wire was persistent and a hose wagon was sent to the water tank in question. Workmen who were trying to thaw it out, set fire to the water tank, constructed of Georgia pine.

THE FEMININE SLANT

"What a long hose," he remarked to himself as the fireman ran it two blocks.

"Will you please shut up and mind your own business?" snapped the tall girl behind him.

MOTIVE MISTAKEN

One of the firemen had a bad cold as the result of fighting a night fire in a drizzling rain. He was placed on sick leave so that he could get medical treatment.

He entered the doctor's office hesitatingly and inquired of the nurse in a whisper, "Is the doctor in."

The nurse replied in a low whisper, "No, but come on in."

The following news item appeared in a newspaper not so very long ago: The investigation of the insurance company revealed the fact that the club had recently taken in a hundred new embers.

OTHERWISE IT IS ALL RIGHT

In one town, a fire apparatus was struck by a motorist while going to a fire. This prompted the editor of the paper to reprint the rules drafted to regulate traffic and the conduct of motorists. Among the other regulations that were printed was the item to the effect that "Safety zones marked on city streets. Motorists must not hit pedestrians on white spots."

"Did you barely escape from that fire last night?"

"No, I had my pajamas on."

Events Preceding the Mysterious Disappearance of a Bootblack, "Shine Mister?" *Judge.*

Originators of the Aluminum Box

The Harrington-Seaberg Corp. was the first to make cast aluminum fire alarm signal boxes now conceded everywhere to be the best.

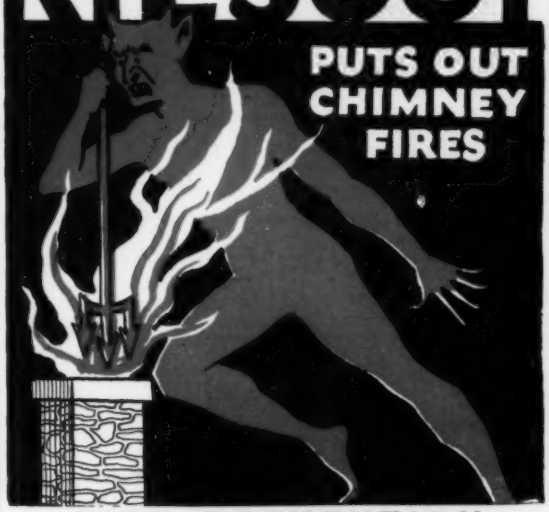
FIRE ALARM BOXES

Adequate fire protection demands reliable fire alarm signal equipment. Harrington-Seaberg sixteen round, succession, non-interfering type boxes can be depended upon to operate perfectly **every time.** Made by specialists in the design and manufacture of fire alarm signal equipment. Boxes are cast aluminum, eliminating all possibility of rust or corrosion.

Don't fail to investigate our complete line of fire alarm and police signal equipment before you buy; literature mailed promptly upon request.

HARRINGTON-SEABERG CORP.
Moline Dept. G Illinois.

KILSOOT



PUTS OUT CHIMNEY FIRES

FIRE PREVENTION

A better, safer and surer way to prevent and extinguish chimney fires is offered to fire chiefs and fire prevention bureaus in the use of "Kilsoot."

We repeat our offer to send liberal samples and full details regarding this remarkable chemical product—gladly furnished upon request.

KILSOOT CHEMICAL COMPANY, INC.
530 West 58th St., New York
Also makers of "Chimnee-Sweep"

MATHEWS
(Reg. U. S. Pat. Off.)
FIRE HYDRANTS
for
DOMESTIC
and
HIGH PRESSURE
Service

Note—

The positive waste valve

All operating threads are above the stuffing box.

No toggles, small screws or other small, quick-wearing parts.

All moving parts are bronze or bronze bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground

Valves and Boxes
Cast Iron Pipe and Fittings
R. D. WOOD & CO.
Phila., Pa.

BUCKEYE WHISTLES

Do they hear *You* Coming?

You can MAKE THEM HEAR you by using the same type of signal that is being used by the Locomotive. And why not? For 75 years the great American Railroads have been using WHISTLES to attract attention to an approaching train. If more effective warning signals existed, the railroads would be using them today—for they are spending millions annually to prevent the **DESTRUCTION of LIFE and PROPERTY.** Our Engineering Department has now made it possible for Fire Apparatus to also enjoy the protection of

BUCKEYE WHISTLES

A Warning Signal that Warns

BUCKEYE IRON & BRASS WORKS ~ DAYTON, OHIO

Waterous Dependable

ROTARY PUMPS
FIRE HYDRANTS

Agents in Principal Cities

Send for our Complete Catalog

WATEROUS FIRE ENGINE WORKS
INCORPORATED
St. Paul, Minnesota

C. A. M.

The Greatest of All Fire Apparatus Sirens

Unconditionally Guaranteed

See our page ad in last issue

C. A. M. Manufacturing Co.
802 Humboldt Bank Bldg., San Francisco, Cal.

The Perfect Satisfaction and economy of wearing the

"FAMOUS KALAMAZOO"

Firemen's Uniforms has been proven by thousands of firemen. Catalog F501 will tell you all about them.

The HENDERSON-AMES CO.
KALAMAZOO, MICH.

The Schavoir Gas Mask

The latest and most advanced development in gas masks. Fire officials everywhere should get the facts.

Write for Complete Information

Schavoir Rubber Co. Stamford, Conn.

BI-LATERAL FIRE HOSE

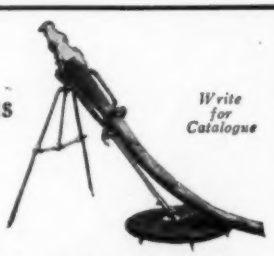
THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

If a hose salesman can convince you by any argument that his three-year guarantee will result in just as good an adjustment, should one be necessary, as a guarantee for six years, from a reliable company, certainly if you have a goat, he's got it.

BI-LATERAL FIRE HOSE is guaranteed six (6) years.

Eastman Improved Platforms and Holders

are indispensable where high pressure service is required. With Eastman equipment any size streams can be easily handled by one man.

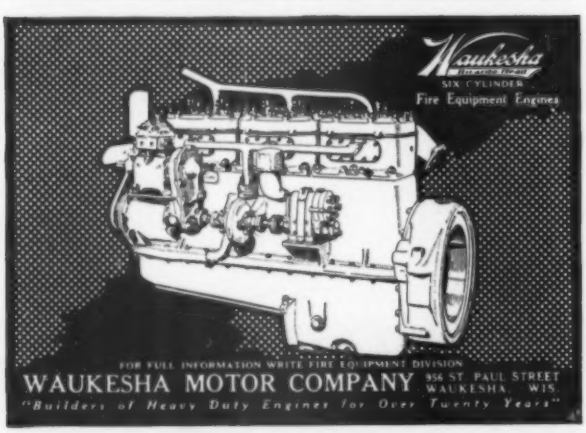


Write for Catalogue

Eastman Nozzles and DeLuge Sets

are designed by engineers who for over thirty years have specialized in equipment for producing fire-fighting streams that are unsurpassed for solidarity, distance and effectiveness.

Samuel Eastman Co.,
Concord, N. H.



FOR FULL INFORMATION WRITE FIRE EQUIPMENT DIVISION
WAUKESHA MOTOR COMPANY 956 ST. PAUL STREET WAUKESHA, WIS.
"Builders of Heavy Duty Engines for Over Twenty Years"

Quick-Acting Reliable

Anderson-Hale Improved

FIRE STATION DOOR OPENERS

Over 1,300 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening. Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.
Mfrs. Motor Fire Equipment and Fire Supplies
Kansas City, Kansas

Stop! Don't Turn Over Until You Use the Coupon Below!

Fire Protection Equipment And Supplies

1 Acid Siphons
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Thermostatic.
10. Asbestos, Clothing.
11. Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Cable & Wire, Fire Alarm.
23 Caps, Firemen's.
24 Chains, Non-Skid, Fire Apparatus.
25 Chassis for Fire Apparatus.
26 Chemical Engines and Tanks.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers, Fire, Powder.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
40 Fire Drills & Organizations.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.

This page is here to make it *convenient* for you to get complete specifications and prices from *reliable* manufacturers of equipment needed for your department. It is *your* page to use freely without any obligation.

To get the information you want, just mail in the coupon below with your name and address and numbers that indicate the equipment listed below on which you would like descriptive literature.

We will then notify reliable manufacturers of your interest in such equipment and request that they send you complete information. They will gladly do this and it will be a pleasure for us to help you in this way. No charge whatever! Help yourself!

TEAR OFF HERE

FIRE ENGINEERING

225 West 34th St., New York City.

As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:

Nos.....

Nos.....

Nos.....

Nos.....

Date.....

Name.....

Position.....

Street.....

City and State.....

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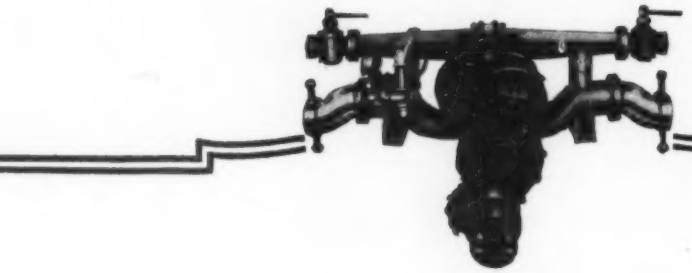
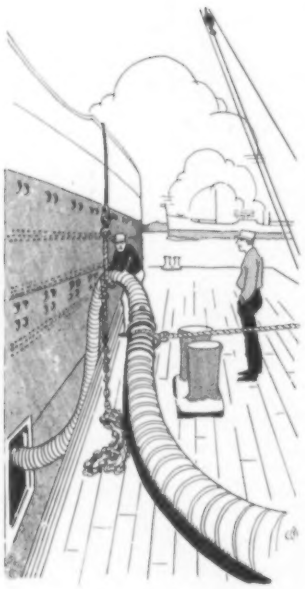
Fire Protection Equipment And Supplies

55 Hose Clamps.
56 Hose Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Priming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs' Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

For Information on Any Equipment Not Listed Above, Write on This Page or Use Separate Sheet.

Feb. 9, 1927





On Board Oil Tankers

MANY Tankers owned by the largest Oil Companies in the world are equipped from stem to stern with Northern Rotary Pumps.

It is fitting that OIL TANKERS should be driven by OIL ENGINES—and it is generally believed that the Diesel Engine is the ship power of the future. Diesel and Diesel Electric ships are called Motorships; abbreviated M. S. Pumps and other Auxiliary machinery on Motorships must be Electric Driven. The commanding position occupied in this field by the NORTHERN ROTARY PUMP—is convincing proof of the merit of the NORTHERN ROTARY PUMP.

Qualities demanded in Motorship machinery are, maximum dependability for service with minimum repairs or adjustment; compactness, light weight, and high efficiency. That these qualities are possessed by the Northern Rotary Pump to an unusual degree is proved by the fact that there are hundreds of Northern Rotary Pumps performing a wide variety of exacting duties on board—Motorships—Motor Tugs—Motor Tankers—Diesel Dredges—Diesel Barges, Diesel Yachts and Diesel Ferries.

Northern Pumps are doing big things in the industrial world — performing exacting services — establishing records for dependability, durability and efficiency.

Many of the world's largest users of pumps buy Northern's regularly.

Northern Pump ads will tell you interesting, impressive proveable facts of the things that are being done by the Northern Pumps that no other Rotary fire pump has done.

This is one of a series of such ads.

NORTHERN ROTARY PUMPS

"MORE GALLONS PER HORSE POWER"

NORTHERN FIRE APPARATUS CO.

902—18th Ave. N. E.
MINNEAPOLIS, MINN.

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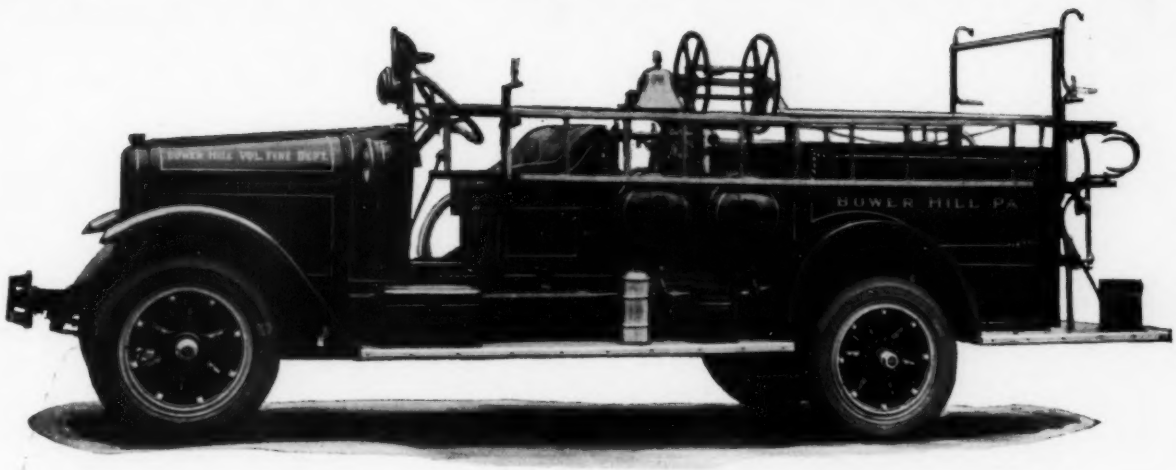

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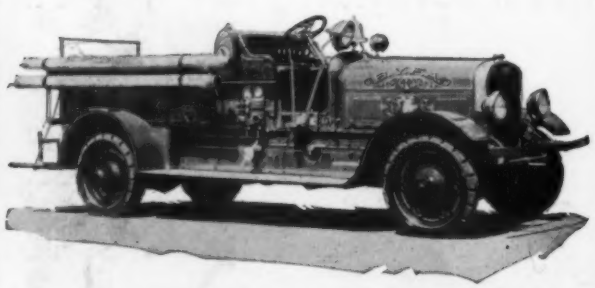

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